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VOL. I. MAY, 1901. No. 9.

THE COURSE OF STUDY

A PUBLICATION FOR TEACHERS AND PARENTS

ISSUED MONTHLY—TEN NUMBERS A YEAR.

Suggestions as to the Study of Psychology

Francis W. Parker

I.

The mastery of a science depends upon a thorough study of the elementary steps that lead up to the laws and principles of that science. *The elementary study of a science demands a long, thorough, and direct examination, by observation, experiment, and investigation of the things intrinsic to that science.* For this indispensable work there can be no substitute. The common failure to comprehend a science is due to lack of preliminary work.

In the first steps a science text-book can be used pedagogically only as a guide to economical investigation, for the statements and discussions of even the best text-book outrun the experience of students, making personal verification impossible, thus confusing and losing the student in a multiplicity of incomprehensible statements. The common refuge is word-memorizing and a vain conceit of knowledge.

II.

The elementary study of psychology demands unequivocally the most careful, thorough, prolonged concentration of the will upon the things (of consciousness) intrinsic to a knowledge of one's own mind.

III.

Every human being has ever with him a perfect laboratory, a stream of thought, containing as its substantial current a constant succession of images. How to study this personal "stream of thought" in successive states of consciousness is the fundamental problem of psychological knowledge. Patience and perseverance to fix the mind on that which seems simple, and moving gradually, through an understanding of the plainest acts of consciousness, up the scale to higher problems, are the inner secrets of successful study.

IV.

The initial, and indeed the main, difficulty in the study of psychology is the strong habit—no doubt springing from instinct—of *thinking in terms of objects external to the mind.* Slight reflection is sufficient to convince any one that there is nothing material in consciousness; that no material object can be in the mind; and that, indeed, not even the thoughts of others can be in my mind. When I see an object—a tree, flower, house, for instance—it (the object) is not in the contents of my consciousness. But something is there, and that *something* in some way corresponds to the external object which "I see." The things intrinsic to a knowledge of psychology are in one's own consciousness, and must be studied there. External objects, of sight, sound, touch, etc., are outside the mind, and are the external causes of internal or conscious effects.

V.

The separation, in thought, of consciousness from all externalities, either material or in the minds of others, is absolutely necessary to anything like a profitable study of psychology. The proof of this separation is clear and convincing, but the habit of thinking in terms of things external to one's own mind is exceedingly difficult to to overcome. Experience shows that persons who have really studied, and in part mastered, other subjects are prepared to enter into the problems of psychology, but those—and there are many—who have never really studied any other science are very poorly prepared for this new subject.

VI.

In the direct study of one's own conscious acts and states there is one inherent difficulty — the stream of thought flows on with extreme rapidity — one image goes, another comes—while external objects appear to be somewhat stationary.

Drawing inferences without requisite data is a common fault in the study of psychology, as in other subjects. Long, careful, all-sided investigation should always precede even a tentative inference.

VII.

One very common vagary is to be noted —that of discussing the exceptions before the rule is understood. Instead of investigating the plainest facts the student often glides into the most abstruse questions, as if controlled by the riddle instinct; for instance, he will concern himself with the problem of automatism before understanding acts that are plainly not automatic.

VIII.

A good working knowledge of the relations of consciousness to the brain and nerve system is indispensable to the study of psychology. It is, however, by no means a preliminary study. Physiological psychology proposes to explain the physical causes of mental effects, while it is evident that effects should be studied before causes. When a student discovers his own images and imaging power, he becomes eager to learn the physical causes of consciousness.

IX.

Exercises are here suggested which may enable the student to separate, in thought, his acts of consciousness from all other things. Fully *realize* the truth of the sentences by steadily holding in consciousness the thought expressed:

1. I am conscious.

2. I am now conscious of something: *See, hear, touch, read.*

3. That something of which I am conscious is in my consciousness.

4. That something which is in my consciousness is not outside of my consciousness.

5. Nothing external to my consciousness is ever in my consciousness.

6. Nothing material is in my consciousness. That which is in my consciousness has no length, breadth, or thickness; it does not occupy space; it has no weight.

7. I am conscious only of that which is in my consciousness.

8. I *know* things outside of my consciousness, but I am not conscious of them. I know things outside of my consciousness, because I have things in my consciousness which I believe correspond to external things.

9. If I would know my mind, I must study the things in my consciousness, separated from all other things.

X.

Reminiscences. Recall many things that have happened to you personally.

1. Think of the house in which you were born, or one in which you lived in early

life. Hold the image that comes first steadily in your consciousness. Note what comes in. How long can you hold this image or these images? What comes in besides images, i. e., things that correspond to external objects?

2. Recall a vacation in the country that you have had; the landscapes, houses, experiences. Hold one landscape steadily in mind. What happens in your consciousness? What comes in besides things that correspond to external objects?

3. Recall your first day in school. The first party you ever attended. Some accident. A trip on the cars. A voyage, if you have made one.

These are suggestions of thousands of recollections. It would be a good plan to recall your entire life from the earliest recollections.

What inferences can you make? In all your reminiscences there are no objects before you (acting upon your mind), but you have things in your consciousness. What besides images? What is the limit of your recollections? If you cannot recall images of an event, what can you recall?

XI.

IMAGING. What mental action precedes the doing of any work?

Make a large number of experiments in this direction and note what happens in consciousness. Plan (1) a dress that you propose to make, (2) a dwelling-house in which you would like to live, (3) a dinner that you propose to get, (4) a garden, (5) some article that you propose to make in sloyd. These are merely suggestions of countless things that you may plan.

Do you ever plan any work without first imaging what you propose to do?

DESCRIPTION. Describe objects to others by speaking or writing. What is the mental process? Tell a story. What is the mental action before you tell the story, or while you are telling it? What must you have in your mind before you are able to tell a story or describe an object? Converse with others. What must you have in consciousness when you describe anything?

XII.

HEARING LANGUAGE. What goes on in consciousness when you are hearing language? Get some one to pronounce words to you, the names of objects, one after the other; for instance, house, fence, trees, street, river, canal, bicycle, horse, dog, etc. What happens in consciousness?

Have words pronounced that do not directly recall images. What words do recall images directly and what words do not? What is the function of words that do not recall images? Get some one to tell you a story. Recall it and tell it to some one else.

What is the mental process of hearing language? What happens in consciousness when you fail to understand a word? What happens when you do not know the meaning of a word?

XIII.

READING. Ascertain by many experiments what the mental process of reading is. Get some one to write words on the blackboard for you. Shut your eyes while the words are being written. Open them, and see what the effect of the words is upon you. The first words written should be nouns; for instance, goose, hen, pig, cow, house, etc.

A part of speech has a particular mental function.

Ascertain by experiment what the mental functions of different parts of speech are. Begin with verbs, followed by adjectives, conjunctions, prepositions, adverbs, etc.

It would be very profitable to take the parts of speech one after the other and get at the psychological function of each part.

What parts of speech arouse images directly? What parts of speech do not arouse images directly? What is the function of words that do not arouse images directly?

[NOTE: It will be readily understood that language should arouse *like thoughts* in the minds of all who hear or read language. A word like "run" or "walk" may indirectly recall images, but it will act in an entirely different way on the minds of the different hearers. One might think of a man walking, another of a cow, and another of a horse.]

What is the mental function of a word? of a sentence? Analyze the sentence in its relation to your consciousness, and tell what each word does for a conscious state.

Read a story and then recall it. Reflect on it. What do you recall?

Recall stories that you have read in the past.

What goes on in consciousness while reading?

What is the difference between study of text and reading? Try a number of experiments. Why is study more profitable than reading?

What discoveries in regard to your own consciousness have you made?

(*To be continued.*)

Social Occupations and History

Emily J. Rice

Investigations in all parts of the country in regard to history in elementary schools show that there is very little work in this subject below the two highest grades. In these grades, American history receives some attention with a view to the cultivation of patriotism, a purpose almost uniformly assigned. It is evident that parents and educators believe that study of American institutions will help the future citizen to fulfill his obligations toward the government; that, somehow, knowledge that can find no immediate expression in action will be transmuted, long afterward, into good citizenship. They see no serious mission for history until the children are old enough to take an interest in political affairs. Consequently, only in connection with this one institution of government is any attempt made to give our children a feeling of their social obligations.

This view of the educative value of history fails in the first requisite for successful teaching. The interests of the children in the elementary schools are not primarily, even in the two highest grades, in political and governmental conditions. They are rather in the social life and occupations of people, in industries. Fortunately, such occupations are finding an entrance into the curriculum. Whereas the school has been regarded in the past as a place where certain things were to be learned, it is now considered as an organization for social work. Cooking, sewing, and manual training may be grudgingly introduced as extra studies, yet there is no doubt that more and more the school will reflect the varied activities of the outside world.

These social occupations are a foundation for the only study of history which the children of the elementary schools can use in any vital way. A great field is here open for the teacher of history to unite the head and hand work, to throw the light of the race experience and the ideals of its literature upon the actual life of the children. The schools are in danger of allow-

ing the same divorce between thought and work that is the bane of our industrial system. In earlier times, the person who spun, or wove, or made a machine, knew for what purpose he was working, and felt that he was giving something by his labor which was of use to others. Now the average worker comes in contact with only a small part of the product, and feels no relation between his own labor and the world for which he toils. His life is narrowed down to the automatic performance of a set task, and his power as a human being declines proportionally. In school, we teach certain intellectual processes on the one hand, and gradually we are introducing on the other hand such handicrafts as are demanded by the changed conditions of the outside life. So far, very little has been done to relate these two kinds of effort. The children enjoy hand-work because it furnishes an outlet for their abundant vitality; but they feel no more than does the laborer in the factory the relation of their work to that of the vast army of toilers in the world, past and present, or to the evolution of social institutions. It is the mission of history to put the individual in touch with the broad field of human endeavor, to give the larger world life.

The historic study of industries gives the children a desire to try the experiments that have been tried in the past, and make over again the inventions which have given us our modern comforts and conveniences. This history has an outlet in expression, and can be tested by results in action. The old tests of knowledge have failed, and the new ones which are taking their place are power to reason from conditions, power to carry out in construction any plan formed, the growth of ability to put thought into execution, and the desire to work and live in harmony with others.

There are three fields of subject-matter that seem especially adapted for this kind of study. The beginnings may be made by going back to the most primitive methods of work, the earliest inventions of tools, implements, and weapons, methods of gaining food and clothing, and means of shelter and defense. To trace primitive methods of obtaining food from the precarious life of the hunter to the storing up of food for future use by the shepherd in his flocks and herds, and finally by the farmer in the ground, which yielded for him year after year its permanent supply, is to gain some notion of the toil involved in any line of progress. Actual work in making metal tools and pottery, in spinning and weaving, in sewing and house-building, gives experience. Tracing these arts from their beginnings relates that experience to our present industrial system. The story of the ways in which people have united in social groups in order to work to the best advantage leads up to the necessity for government, to commerce and city life.

American Colonial history is the second field of subject-matter especially adapted for the study of industries. Primitive life prepares the way for it, by showing the use that early people made of nature's resources. Colonial history illustrates the relation of man to a definite region. It shows the development of a simple industrial life, with none of the complications growing out of our modern factory system. The pioneers were thrown back into primitive conditions, and had to win their own way in material things. Different groups of people were obliged to meet their necessities according to special conditions of soil and climate. In this study, as in that of primitive life, we trace man's conquest over nature, but at a more advanced stage of his progress. The energy, industry, and patience of the sturdy Colonists, and their devotion to principle, make this a period of history which is as valuable to the chil-

dren as any in all the range of human experience.

As Colonial history is usually taught, it becomes the story of individual experiences. It should trace the overcoming of difficulties, the hard labor to produce food for the community, the economic life of the people, the household industries, the effects of the varied occupations of the North, and in contrast, of the staple products of the South, upon social life, and the effects of these social conditions upon government. It should follow the history of corn and tobacco, of flax and hemp, of cotton and wool, of wood and iron.

Here, as in the study of early man, it is possible for the children to gain something of the experiences of the historic people, to overcome certain of the obstacles which they met, and to enter into the spirit of their hard labor. If the children weave one small web on an old-fashioned hand-loom, they get a fuller conception of the Colonial period than they would by reading many stories about John Smith or William Penn.

Colonial history occupies the central place in our course of study in that it seems to be the best material for the middle grades. From it two lines of work naturally follow. The movement of the American people from the seaboard westward, pioneering all the way across the continent, is one of these lines. In this study, economic and social conditions give a foundation for understanding political institutions. In the higher grades, the children may come to the study of government with a habit of seeing the reality in history and of using their conclusions in some active way. A second line of work is tracing our social and political life from their sources in European history.

The third field of subject-matter for the elementary schools is, then, that of government, with its basis in economic conditions and its starting-point in civics. Interest in civic conditions and in current events will lead to an intelligent investigation of their causes. We should make the present our point of departure, and constantly return to it. The study of civics needs history to show the origin of any present state, and history needs civics to give it impulse and purpose. Practical work in investigating local conditions may be as useful here as was the shop-work of earlier years. There are questions of streets and transportation, of building laws and architecture, of shops and factories, of parks and playgrounds, of organization and officers, which call for active effort and industry, and demand historic explanation.

In order that the individual may take a vital part in social progress, he must feel the social value of his own occupations and interests. The habit of his life must be fixed in acting upon conviction, and convictions must come from insight into the meaning of activities. He who feels the artistic possibilities of handicraft will have no scorn of labor, and will be willing to do his part of the world's work. He who is accustomed to social work in his earlier years will help toward the realization of a more unselfish spirit in the community life. When our children study ideal civic conditions in school, we may hope for a public conscience that will redeem our political life, and a sense of art that will give us civic beauty.

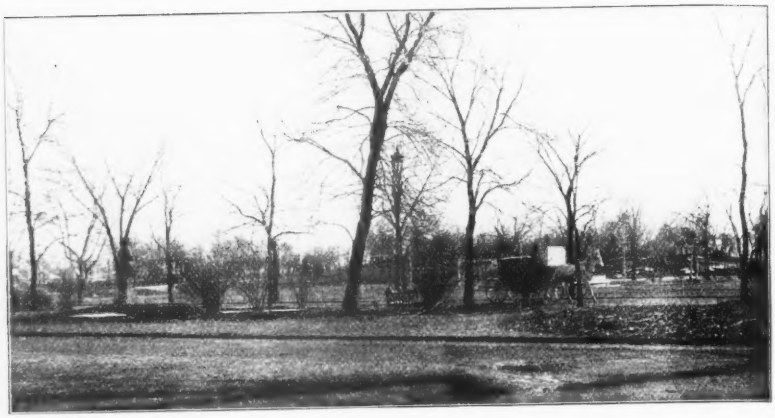
Pedagogic Course in Nature Study

Charles W. Carman

LINCOLN PARK, MARCH 31ST

The nature study classes, at the present time (April 15th), have entered upon but a portion of the work outlined in the April number. Group III was selected to take precedence of the other groups whenever the weather would permit visits to the parks. During the three visits made the general landscape was noted and sketched. The elm is the type of tree selected for special study. Its form and method of branching were noted and sketched. The sketches are to be preserved for comparison with those made after the foliage has begun to develop. The more marked changes noted, during the first two weeks of April, are the disappearance of the snow, the appearance of the birds, and green in the place of the dead brown turf. The swollen condition of the ends of many of the stems has been noted, but no leaves have been developed. Bulbs and seeds have been developed and germinated in water-bottles, and sketches of the changes have been made and preserved. One of the bulbs, since April 1st (fifteen days), has developed a combined length of stem and root exceeding nine inches. Each student is making sketches of the daily changes in a given kind of seed, by planting thirty or more in mold, and removing one each day for the observations.

Group I has been studied on days unfavorable for study in the parks. Methods of producing illuminating gas from coal and from calcium carbide were illustrated and discussed in the classroom. An ideal



LINCOLN PARK, APRIL 8TH

LINCOLN PARK, APRIL 15TH

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gas-plant was studied by means of the projection of a section upon the screen. A visit was then made to a large gas-plant, and, aided by the chief chemist and superintendent, the various processes were traced and explained. Reports and discussions were given in the classroom on the following day.

The work during the remainder of April and for May will be a continuation of the outline given in the April number of the COURSE OF STUDY.

Geography

Zonia Baber

One of the chief attributes of a teacher's course of study should be its sectional elasticity. A rigid plan of action may be efficient for the manipulation of inanimate objects, but it is found inadequate in its application to human beings. When a course of study becomes crystallized and fixed, both pupils and teachers are apt to consider that its boundaries encompass all of educational and cultural value; while the wealth of knowledge which lies beyond its restricted limits is seen in distorted perspective.

The necessity of a definite, carefully considered plan of work is paramount, but one which admits of changeable definiteness is to be preferred.

The chance visit of a bird, insect, a strange fruit, or other object brought into the schoolroom, a rain or snow storm, may form the basis of lessons of far more intrinsic value than the regularly planned lessons of the day could afford.

The world has become so small that each morning we cast our eyes over the entire surface of the earth and note its daily changes. The newspapers and magazines have become the universal text in history, geography, and political science, and they have more influence in shaping national and international behavior than we are sometimes willing to admit.

A child's newspaper reading needs often more careful direction than his reading of books. One may put only good books in the way of the reader, while the newspaper parades the evil and the good upon the same page. A teacher may do a great deal in establishing a standard of what news is of worth by daily or weekly reports upon happenings which are of educative interest.

The movements of the centers of geographic interest cannot be predicted a year in advance; hence any preconceived scheme for teaching geography must be sufficiently elastic to admit of the consideration of those parts of the globe which thrust themselves into the arena of international interest.

The struggle for independence in South Africa has brought the "Dark Continent" so near the American people that the Transvaal, Orange Free State, and Cape Colony are as familiar as the adjoining county.

China has succeeded in holding a world-wide audience breathless for a year, and we find ourselves tracing the behavior of Russia, Great Britain, Germany, France, and the United States, in the Orient, with more concern than the doings of the state Legislature or of Congress.

China is to-day an international laboratory where the progress of civilization of the "enlightened" and "barbarous" (?) nations is being measured and recorded; where the moral and religious character of nations is finding a civil test.

A shrine has been erected there to the supreme god of modern civilization, "Commercial Expansion," on whose altar the Occidental nations vie with each other in the sacredness of their offerings, until self-respect seems about to be sacrificed.

The building of the Isthmian canals; the laying of the new ocean cables; the trans-African telegraph; the expeditions to the Arctic and Antartic regions, and other scientific explorations; the building of the

trans-Siberian railroad, are all subjects of present vital interest in human progress, and their meaning and importance should not be overlooked in our geographic teaching.

Pedagogic School: CHINESE EMPIRE, KOREA, AND JAPAN.

I. CHINESE EMPIRE.

1. Topography of Eastern Asia.

(a) Plateaux: Tibet, Pamir, Gobi.

(b) Mountains: Himalaya, Kuenlun, Altyn, Tagh, Altai, Yablonoi, Khingan, Tsin-ling-Shan.

(c) Plains of China: Origin; use.

(d) Rivers: Yang-tse-Kiang, Hoang-Ho, Si-Kiang, Tamir, Amur.

2. Climate.

(a) Winds; influence of high plateaux; deserts; typhoons.

(b) Rain: Account for summer rains. Influence of fringing islands.

3. Soil.

(a) Loess region: Extent; theories of origin; use; influence on Chinese civilization.

(b) Red earth region: Extent; account for productivity.

(c) Alluvial plain: Formation; agricultural uses.

5. Products.

(a) Agricultural: National standing of farmers, government encouragement; manner of soil cultivation.

(b) Minerals and metals: Extent of coal deposit, gold, silver, jade, copper, etc.

(c) Manufactory: Home manufactories; how carried on; introduction of factories.

6. Cities: Peking, Cheefu, Shanghai, Hong Kong, Canton, Nanking, Hankow. Plan of building cities; pavement; domestic and religious architecture; means of procuring water, light, and heat; transportation facilities in North and South China.

7. Education: Describe a Chinese school. Describe examination in Peking or Canton. Influence of education on government.

8. Present political condition. Boxer movement an incident in the battle between Occident and Orient. Nations interested in political and commercial conditions in China.

History: Short story of China's past.

Questions: 1. What constitutes China's greatness?

2. What causes China's weakness?

3. What can the Occident learn from the Orient?

4. Should Russia control Manchuria?

5. What justification is there for England's control of Kowloon, Hong Kong, Wei-hai-wei? Germany's occupation of Kiao Chau? France's claim to Hainan?

6. What was the influence of the Chinese-Japanese war?

7. What do you predict for the future of China.

References: Williams, *Middle Kingdom;* Huc, *Chinese Empire* and *Travels in Tartary, Thibet and China;* Mill, *International Geography;* Standford's *Compendium of Asia*, Vol. I; Reclus, *Asia*, Vol. II; Holcombe, *The Real Chinaman;* Smith, *Village Life in China, Chinese Characteristics, Why the Chinese Dislike Foreigners* (Outlook, Vol. LXVII, pp. 216–221, 1901), *Remoter Sources of Troubles in China* (Outlook, Vol. LXVI, pp. 879–883, 1900); *Sources of Trouble in China* (Outlook, Vol. LXVI, pp. 1036–1041, 1900); *Anti-Foreign Crusade in China* (Outlook, Vol. LXVII, pp. 113–118, 1901); E. Reclus, *Vivisection of China* (Atlantic, Vol. LXXXII, 329, 1899); Hart, *China Reconstruction* (Fortnightly, Vol. LXXV, pp. 99–193). See full reading list.

II. KOREA.

1. Position and extent.

2. Coast-line: Numerous islands.

3. Topography: Location and appearance of mountains, Kang-swu Do, volcanoes. Rivers: Han, Yalu, Tai-dong; use to country.

4. Climate: Rain, wind.

5. Products: Cereals, roots, tobacco, cotton, hemp.

6. Cities: Seoul, Fusan, Mokpo, Chemulpo, Won-San. Domestic and religious architecture.

7. People: Appearance, dress, customs.

8. History: Relation to Japan; to China. What is the relation of Russia and Japan to Korea? Which has best claim? How would it benefit Japan if she controlled Korea? If Russia controlled Korea? What advantage would she derive?

Why does England control the revenue of Korea as well as of China?

References: Mill, *International Geography*, p. 542; Stanford's *Compendium of Asia*, Vol. I, p. 323; Reclus, *Asia*, Vol. II; Norman, *The Far East*, p. 323; Bishop, *Korea and Her Neighbors;* Griffis, *Korea, the Hermit Nation;*

Williams, *Middle Kingdom, Korea;* Curzon, *Problems of the Far East*, pp. 85-217.

III. JAPAN.

1. Extent of islands. Most important islands.

2. Surface: Mountains, volcanoes, short, rapid rivers.

3. Climate: Direction of winds, typhoons. Summer rains; explain.

4. Resources: Mineral: Coal, iron, copper, silver, gold, antimony. Where found?

5. Flora and fauna.

6. Cities: Yokohama, Tokyo, Kobe, Osake, Kioto, Nagasaki. Characteristics of domestic architecture. Influence of earthquakes on architecture. Religious architecture; Buddhist and Shinto.

7. Artistic development.

References: Rein, *Japan*; Griffis, *Mikado's Empire;* Hearn, *Glimpses of Unfamiliar Japan;* Mill, *International Geography*, p. 545; Stanford, Vol. I, p. 446; Reclus, *Earth and Its Inhabitants*, Vol. II; Murray, *Handbook for Japan;* Chamberlain, *Things Japanese;* Bird (Mrs. Bishop), *Unbeaten Tracks in Japan;* Scidmore, *Jinrikisha Days.*

Illustrative materials to be used: Photographs, stereopticon views; costumes of Japan, Korea, and China; books used in the schools in China, Japan, and Korea; paintings, written works, and sewing specimens from Japanese schools; specimens illustrating cloisonné-making, lacquer, keramics, embroidery, tapestry, cabinet specimens, etc.

Expression: Model in sand Eastern Asia, including Japan.

Draw in relief Korea, Japan, and China. Draw typical landscapes.

Art

John Duncan Antoinette Hollister Clara Isabel Mitchell

Geography: Two lessons a week will be given in the Pedagogic Class in geographic drawing. During this month the class will study the topography of China and Japan, and in our art work we shall try to represent characteristic landscapes of these countries.

The Yang-tse and the Hoang-Ho will be taken as typical rivers, and Fusiyama, the sacred mountain of Japan, as a typical volcano. The students will familiarize themselves with these regions through the medium of photographs and stereopticon views, and will then express their conceptions upon the blackboard, filling in as much detail as they may command.

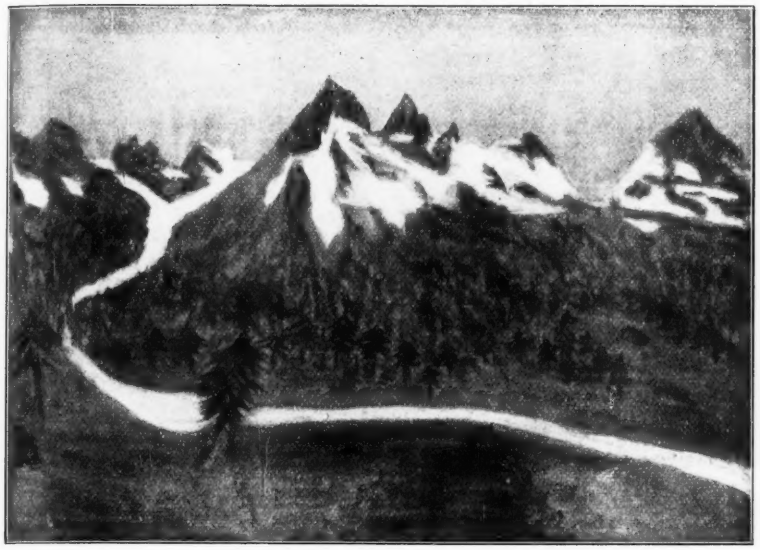
We shall also picture the fields of rice, and tea and cotton plantations, showing the processes of culture and manufacture.

Problems of technique will come up in the difficulties of drawing, and will be considered as they present themselves. The questions of light and shade, perspective, and the rendering of textures, will be informally discussed.

Beginners are apt to fall short in rendering the surfaces of things, and the only method of correcting the general appearance of wooliness in a drawing is to demand that the student focus the subject-matter more sharply in consciousness, for it is by stronger imaging of the rocks, alluvial soil, vegetation, and water that they assume their individual qualities and textures.

The method of work of the students of the Pedagogic Class will necessarily differ from that of little children. Older people are conscious of limitation and of the medium of expression. For example, children are not early troubled by questions of perspective. For a long time they are contented to draw things, not as they see them, but as they know them to be.

It is difficult for children to distinguish between their tactile and their visual



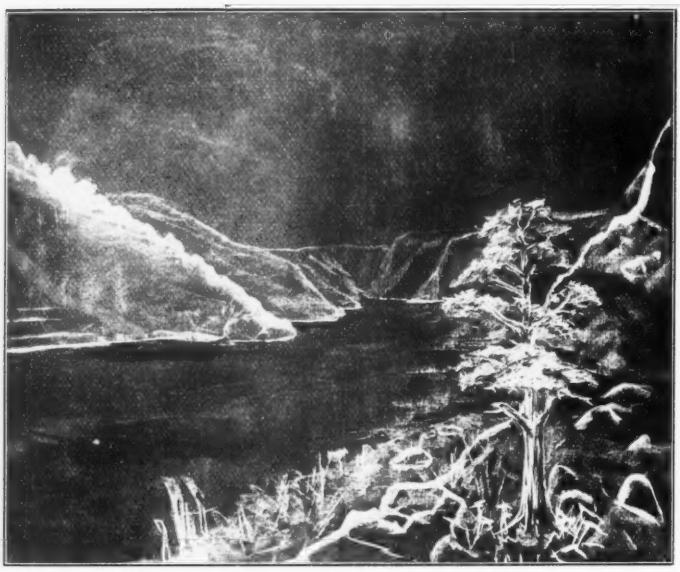
DRAWING IN COLORED CHALK
By student in first year of High School

images, and they must not be expected to do so with any degree of precision. Their drawing will very properly express all their knowledge of things gained through every channel. With fuller experience they will come to distinguish the two classes of images ever more and more fully. The first questions they put in regard to difficulties of perspective indicate their first conscious effort to differentiate their visual from their tactile and motor imagery. Their first attempts at perspective are concessions of the tactile imagery to the visual. Until this stage of recognition has been reached, the subject need give the teacher no concern.

Whenever children begin to be hampered by their want of knowledge, the teacher will direct attention to the facts of appearance (as, for example, that men seem smaller when at a distance than when seen near at hand; that lines of streets, sidewalks, and eaves of houses appear to come together as they go farther and farther off; that things are more distinct, have brighter lights and darker shadows, in the foreground than in the background); all this, however, without too much insistence to the hindering of the more serious aims of the drawing. The teacher should only remove the obstruction to the child's expression, and not make occasions for lectures upon technique.

Science: We shall continue the work upon buds and twigs outlined in April, and go on with the drawing of germinating seeds and bulbs. We shall also continue to paint the landscape in water-color, to bring out the changing aspects of the season, and will make a more intimate acquaintance with the trees of Lincoln Park, sketching with pencil and brush.

A few of the common trees will be especially studied, that we may come to recognize the essential character of each (that which distinguishes it from all



BLACKBOARD DRAWING
By member of Pedagogic Class

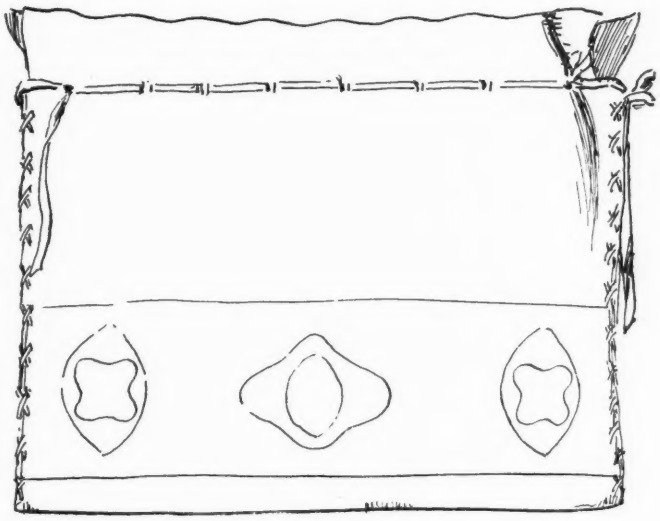
others), and gain the power of expressing that character in the most economical way. To get at the type, we shall look at many individuals, abstracting the ideal from the real. We would have the students cultivate this habit of mind of seeking the general in the particular, and would have them realize that the best technique in art is always the simplest and most direct way of expressing the essential characters of things.

Illustrations: During the past month we were occupied with the story of the *Sleeping Beauty*. The students were surrounded with pictures, from the school collection, of castles, of kings and queens, princes, pages, and animals asleep and awake, to assist them in setting the little stage that lies within the four borders of their painting pads, costuming the people and dramatizing the scenes of their imagining.

These school pictures do not illustrate the story upon which we are at work, and so the students cannot merely copy them. The figures are not in the proper attitudes. The most the students can do in this way is to adapt a little here and a little there; they must adjust and arrange everything. They feel that it is not altogether reputable to copy, that it is much better, more honorable, and more educative to invent for themselves. The school picture collection, however, is helpful even here, and to the most original it affords suggestion and stimulation.

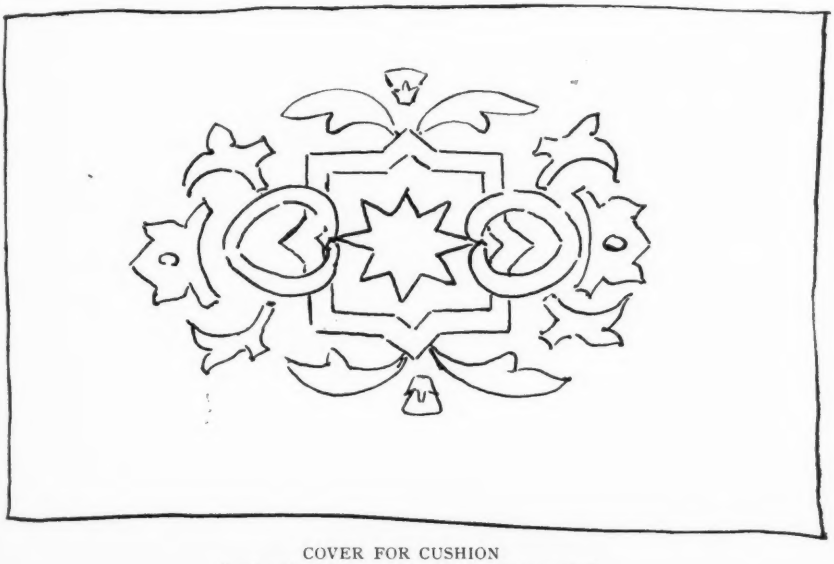
In May we will take up Greek stories and will saturate ourselves in Greek art.

Textiles: The textile work is a continuation of basketry, weaving of small squares for rugs, cushions, and curtains, spinning, and decorative needlework. Baskets already finished have been made of reeds (bought of Marshall Field & Co.), Indian splints (bought of George D. Mitchell, Indian Island, Oldtown, Maine), and raffia vegetable fiber (bought at Vaughn's Seed Store, Chicago).

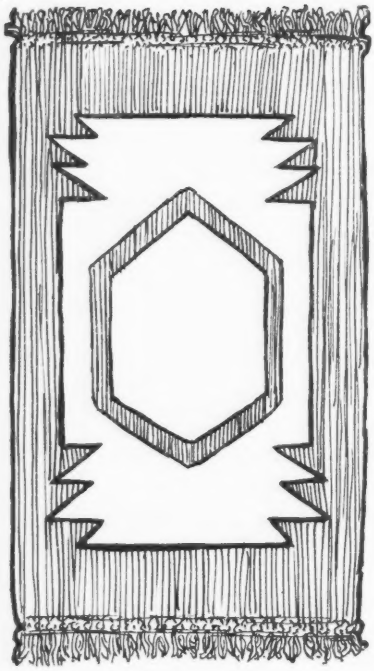


LEATHER BAG
Designed and made by student

Embroidery has been, and probably will be, confined to the simple processes of cross-stitch, satin-stitch, chain-stitch, and French knots, as these are considered all that can well be used in teaching children. The things so far designed are sofa-pillows,



COVER FOR CUSHION
Appliqué in leather. Designd and made by student



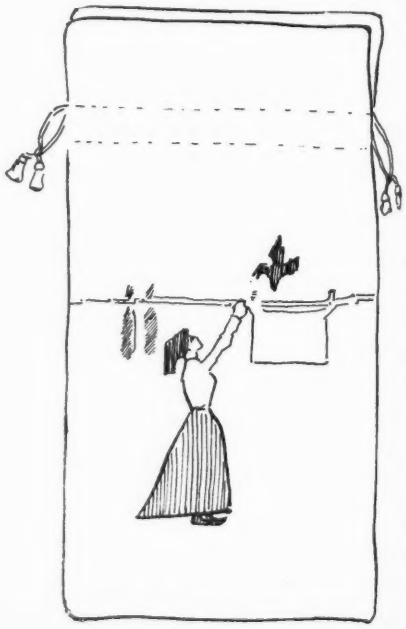
RUG, 20×30 INCHES
Designed and woven by student

bags, and table-centers. The designs are simple and conventional, but original.

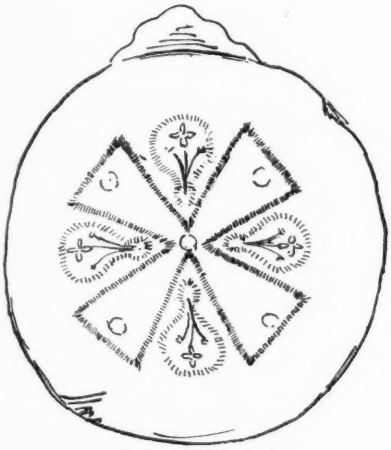
Left to choose freely, the students have taken suggestions from the geometrical patterns in the decorations shown them for study, rather than from the natural forms about them. Few instructions have been given in the directing of pattern-making as to motives of design or rules for working them out. Students have been encouraged to plan the construction and decoration of objects to fit the *use* for which they were intended; to please the taste of those by whom they were to be used; to avoid ornamentation for which they felt no use and from which they got no genuine pleasure. A dozen different geometric arrangements were shown them for constructing borders and all-over patterns, and they were warned against a too naturalistic treatment.

Though nature is the great source from which we derive all, or nearly all, the motives for our ornament, the things that we take from her must be subjected to certain modifications before they are suitable to our purposes. They must be adapted (1) to the special technique of the craft; (2) to the purpose of the work; (3) to the position the work will occupy; (4) at the dictates of the architectural sense, the desire we have for order, proportion, symmetry, rhythm, and we might almost say rhyme, the repetition of parts; (5) to fancy, (imaginative play).

The materials used in weaving are wool-roving, carpet yarns, Germantown zephyr, and cotton carpet-warp. Experiments are being tried in the use of rope embroidery



LAUNDRY BAG
Designed and worked in cross-stitch by student



LEATHER FOOT-STOOL
Designed and made by student

silk, for weaving purses, book-marks, and small bags.

Embroidery is done in coarse linen, art linen, and on our coarsely woven woolen fabrics.

[NOTE: Very beautiful examples of primitive and good art in basketry and rug-weaving may be seen in the art department of Marshall Field & Company and at the Field Columbian Museum.]

References: Owen Jones, *Grammar of Ornament;* Henri Mayraux, *A Manual of Decorative Composition;* Myers, *Handbook of Ornament:* Lewis Day, *Manual of Design* and *The Art of Embroidery;* Paulson Townsend, *Embroidery, or the Craft of the Needle;* Art Journal, *The Studio* and *The Artist.*

Speech, Oral Reading, and Dramatic Art

Martha Fleming

Pedagogic Class: This class has been studying the construction of the drama, and with this in mind has read several plays—*Hamlet, Romeo and Juliet, Cyrano de Bergerac,* and *L'Aiglon.* Among the points discussed were: Essential characteristics of a drama. Relation of the drama to life. A play as an organic whole. What is in the mind of the writer of a play when he begins to write? Value of costumes and scenery. What should they do for a play? How much should we depend upon scenery and costumes for the plays arranged by the children? Do the children themselves demand scenery? Relations of the drama to pictorial art. Relations of the drama to music. Limitations of the drama. Pantomime in First and Second grades. Do the children in these grades naturally use language in their dramatizations?

At the present time members of this class are writing up the dramatic experiences of their own childhood as they remember them. They are also watching and studying manifestations of the dramatic instinct in other children, and writing up their observations for further use. This will give us a large amount of data which will be some help toward solving our problem: How far is dramatic presentation the child's mode of expression? How shall we use the dramatic instinct for educative purposes?

Some of the spring stories written by this class in literature, under Mrs. Thomsen, as *The Sleeping Beauty* and *Beauty and the Beast,* were eliminated, condensed, and concentrated into little plays. *The Sleeping Beauty* will be played by the First and Second grades in pantomime, introduced by music and prologue, and accompanied throughout by music.

Geography: In May the Pedagogic Class

will study the geography and history of China, Japan, and Korea, and they will naturally dwell upon the late trouble in China. Some of the stories and episodes that have been told by those who were in Pekin or in other places in China at that time will be related, and the one seeming most capable of dramatization will be resolved into a play. This will necessitate a close study of Chinese character and temperament, also a study of their social life and conditions, manners, customs, and costumes. The material for this study we have in the school. For references, see Miss Baber's outline. In this connection the class will read orally the address on Chinese jurisprudence by Wu Ting Fang, Chinese ambassador to the United States, also *The Chinese View of the Christian Easter* by the same author.

For the month's work in spoken English, see the December COURSE OF STUDY.

Mathematics

George W. Myers

Pedagogic School

Teachers who gather their ideas from the text-books as to methods of presenting subjects to pupils are apt to be led astray in many ways. One of the most common of these ways originates in the assumption that because the books usually introduce the subject with a formidable list of definitions of technical terms, the ability to give correct definitions is the *first* result to be sought. It would be difficult to commit a more egregious pedagogic error than putting this into practice. It is trite to say that the definition of a term, even though it may be made *verbally* intelligible, can have no vital significance to a mind devoid of the idea being defined, as used in the unknown subject. The necessity for and meaning of the implications and limitations of the definition can be appreciated only by the master of the subject. Consequently it should be borne in mind by the teacher that the ability to define terms intelligibly marks the *final*, not the *initial*, stages of study of an inductive, if not of a deductive, science. There is then less unreason in testing the degree of a pupil's mastery of a subject by a set of examination questions calling for definitions than in the teacher's calling for the definitions at the outset, though neither practice is advocated.

If, however, it be granted that an inadequate or incomplete definition must sometimes be taught, either because of the immaturity or faulty early preparation of the pupil, the partial definition must not be taught in such a way as to hamper the student later when he meets the necessity of learning the complete definition. For example, to teach the pupil that "multiplication is using one number as an addend as many times as there are units in another," or "is taking one number as many times as there are units in another," and that therefore it is not possible to multiply a number by ¾, because "you cannot take a number ¾ of a time," is pedagogical treason. The partial truth must not be taught as the whole truth and then so thoroughly drilled into the pupil that he cannot make the necessary extension of the definition when the time comes. The name of the pedagogical sins which may be enrolled under this category is legion, and mathematics is the chief sufferer from them.

Educators who have given the subject

most thought seem pretty well agreed that the earlier stages of number study and arithmetic should be inductive. If there is any one thing that the inductive sciences have taught us more clearly than another, it is the primary importance of clear and accurate ideas, and the secondary importance of their symbolic representatives. It behooves the elementary mathematical teacher to be particularly heedful of this principle which has taken pedagogical shape in the familiar phrases: "The idea before its symbol," "The thing before the sign," etc. Not to heed it is to go back to the methods of the old commentators 1800 years ago when any jargon of words passed for attainment.

Part of the artificiality which runs through current arithmetical teaching is due to the artificial character of the subject-matter. Another part owes its origin to the lamentable fact that many, if not most, of the grade teachers of arithmetic have never studied mathematics beyond the immediate needs of their positions, and are therefore not clear as to the ultimate purpose of their work. A third part is due to the fact that many forget, or do not believe, that the pupil may be familiarized with the fundamental ideas of arithmetic by actually working with number in a rational way, without any attempt to force arithmetical ideas and processes into the pupil's consciousness by requiring him to commit definitions whose significance and beauty depend upon the extent of their reach beyond his experience.

It would seem, therefore, that the use of such unmathematical terms as "and" for "plus" and "less" for "minus" while the pupil is engaged in acquiring the new idea of the nature of the processes of addition and subtraction is good pedagogy, if not good science. This does not mean that the terms "plus" and "minus" must not be taught at all in the grades, but rather that the ideas for which they stand should be first acquired with as little loss of energy as possible by the use of words which can have a meaning only after the acquisition of these ideas. To add and subtract rationally and intelligibly first and for some time (until the meaning of the operations is clear), and then to name the new acts with distinctive terms, which do not have a penumbra of popular and irrelevant suggestions clinging to them, seems also to be the *scientific* as well as the *pedagogical* order of procedure. This principle is of far-reaching significance in the teaching of arithmetic.

Let it be borne in mind that until the nature of number and of numerical operations has become familiar and facile to the mind, it is useless to call upon the learner to perform a mental act which involves the conscious recognition of these abstract ideas. The learning of a definition is such an act. After the pupil has worked with both concrete and abstract numbers until the operations have become in a degree automatic, he will have sufficient mental energy left from the simple doing to perform the mental act of abstraction with vigor and clearness. Until this state is reached it is useless, aye, positively harmful, to talk to the pupil of number as an abstraction, of the ratio definition of number, and of various other important attributes of abstract number which lie so deep down in the essence of number that even the philosophers wrangle over them.

But an idea of number must sometime be formed by the pupil. If his training has been of the right sort, the pupil will at no late period in his mathematical study—soon enough indeed—come to feel instinctively, to *sense*, the real essence of number as a mental product. Working for a while with numbered things before his senses, then with numbered things before his memory, he will gradually learn, from the

act of abstracting, by which he sets aside from thought the qualitative attributes of things which constitute their individuality, and from the exercise of the generalizing faculty, by which he gathers them together under a quantitative aspect, how to withdraw his attention more and more from the concrete qualities of things and still to retain a vigorous mental grasp upon them. If the teacher is careful to have the pupil always work rationally with numbered things, either physically or mentally present, he will find him more ready than he thinks to perform the mental act by which the individual, with its qualitative differences, is dropped from thought, or better, is submerged to an extent, and the general, with its quantitative likenesses, is elevated into prominence. This is merely a roundabout way of saying that the abstract idea of number must be reached as a generalization from the concrete numbered thing. It would therefore be equally unpsychological to use no concrete things at all in number teaching, and never to use anything else. Number is in its essence abstract, but let us not forget that the road to its hidden mysteries lies through the concrete.

While much of the number work of the elementary grades is open to the criticism of being fragmentary, even to the verge of frivolousness, there is danger of going too far to the other extreme. The motive for the doing of the number work must be present to the child's mind with sufficient clearness to make a decided appeal to him. To draw his number work from a problem so complicated in its details, such as the determination of the cost of the materials and erection of an elaborate structure, requires too great continuity of thought, depends upon the appreciation of the value of a motive too ultimate to make a strong appeal to him, for the pupil to profit by it.

Such problems, at too early a stage, are practically without a motive for the child, though they may appeal strongly to the adult.

Topics for the preparation of papers and discussions:

1. Discuss the number work done in connection with the topographic map of the park with reference to its place and value in the grades.

2. What is meant to-day by the study of arithmetic for its utility? How does this differ from what was meant formerly by utility as an end of number study?

3. What should be allowed to become mechanical with the pupil in arithmetic, and what should not?

4. Is it ever wise to attempt to secure mechanical skill in the performance of operations which the attainment or maturity of the pupil make it impossible for him to understand at the time?

5. Should the maxim, "Tell the child as little as possible, and allow him to discover for himself as much as possible," be understood to mean, "Tell the child nothing at all"? Substantiate your answer.

6. What is meant by inductive methods of teaching? By deductive? Give an example of each. When should arithmetical study be made largely inductive, and when should deduction be begun?

Physical Training

Carl J. Kroh Caroline Crawford

The living worker, apt and of insight, is not slow to appreciate the fact that methods of study based upon mere statement of fact are not productive of lasting results. He enhances his study by a wise direction of effort toward the establishment of fundamental facts. Information and experience are gathered in the practical

pursuit and study of the essentials of his particular subject; the relative values of procedures are adjudged in diligent practice and observation of work. Persistent effort in the search for fundamental facts is regarded essential to success.

Whatever the phase of work or order of investigation engaging the student of physical education, he is confronted with varied and complex problems, the nature of which not infrequently leads him to infer that some of the weightier questions affecting his particular study have not been generally exploited. Indeed, the range of application of the tenets of physical education is so wide and diverse that he finds his strongest incentive for the development of a healthy, vigorous, gladsome, and robust youth in the possible extension of his influence beyond the purposes of school and through life as a totality.

The practical work offers him a sheer endless chain of sequences, in concord with which he strives to systematize his material, that he may readily harmonize ends and means. He becomes proficient in measuring effort and learns to graduate his work as per indications of age, sex, and skill. He avoids excess by carefully distinguishing between healthful, orderly, and pleasurable gymnastic training, as contrasted with merely formal drill or mere pleasurable activity for the sake of recreation. He realizes the value of pedagogical procedure in this training, and the fact that much care, a set purpose, patience, and perseverance are needed to subserve the best interests of all and to establish permanent results.

In seeking to perpetuate the characteristics of this educational discipline, he studies the life as portrayed in the work of the gymnasium, a study of human nature at first-hand, expression in all its phases, of body, mind, and soul. He studies not only the physical, but the mental, social, and spiritual being as well, and as his conception of the uses of his particular subject enlarges, he adjusts and readjusts his methods in conformity with the teachings of science, avoiding all forms of specialization which are one-sided and of questionable value. His interpretation of proper methods of class, group, and individual work is based upon the character-index of the pupils as revealed in the free and organized play of the children, in the gymnastic exercises, games, and athletic sports of the elder youth, by the quality of control and of restraint of self manifested, by the quickened pulse and readiness with which the pupils respond to all reasonable behests. Thus he comprehends the larger import of educational gymnastics, encompassing so much that is needed for the enhancement of life and school work.

Free Gymnastics: The work in the gymnasium of the Grammar and High-School grades illustrated the sequent order of free exercises,* and numerous movement forms correlated with general and applied gymnastics.† The methods characteristic of the latter illustration were distinct from those of the former. One-half the time of the regular periods, three times a week, was devoted to this practice. Classroom work so far has been dispensed with.

There is a practical agreement with reference to the value of free gymnastics as a corrective means. Their importance as

*The effectiveness of the different movements and exercises employed in free gymnastics depends upon the order of their construction and modes of execution. The construction of an exercise is designed in accord with its purpose. It entails the consideration of certain factors which determine its gymnastic character. Force and resistance are variously employed in estimating effectiveness. The laws of leverage, applied in the gradation of work and the relation of basic positions to effort and effect, are of first importance in considering sequential order. The general or specific design of a lesson is also determinative in the selection of exercises with reference to form, kind, and order. Frequency of periods, regularity, space, and time are factors in progress.

†See next number of the COURSE OF STUDY.

a fundamental work in body building is recognized. Views expressed with reference to the conduct of this branch of gymnastic work, however, show a wide diversity of ideas.

It is intended that the work as presented shall prove helpful to the students who attend the regular lessons as observers. It is suggestive of the modifications indicated in a regular course of instruction.

Suggestions: I. The classification or the grouping of pupils for gymnastic purposes should be based on a careful consideration of individual conditions and qualifications.

II. Concert work should facilitate progress in the accomplishment of gymnastic and hygienic as well as educational purposes. Pupils of like abilities should be grouped together. Defective classification retards progress and entails modifications of procedure calculated to restrict effort to the minimum or average requirement.

III. The usual order of strength tests and measurements should be supplemented by exercises for ascertaining the degree of co-ordinative skill possessed by the pupil, determining his especial fitness for the work of a class or group in gymnastics.

IV. Instruction plans should emphasize definite class aims (see October COURSE OF STUDY) with a purpose in view of realizing the best possibilities by strengthening the general plan.

The various lesson programmes of the past month included tacto-gymnastics, i. e., free exercises executed alternately and simultaneously with marching, hopping, and running exercises in and from place. The order-of-movement direction suggested for the practice of free exercises of the first order (see February COURSE OF STUDY) was augmented by a study of movement possibilities in intermediate directions.

The free gymnastics of the next order will embrace exercises in kneeling, sitting, lying, and stem-supporting positions (on hands and feet), also in head, arm, and hand stand positions. In these positions the movements and exercises, involving elevation, flexion, extension, turning, etc., can be repeated, the respective positions limiting execution to the parts not employed in supporting the body.

The High-School students began a course in fencing during the past month. Foils were selected as weapons. The preliminary practice consisted of the study of the positions "on guard," of attack and defense, without arms; the "appel," advance and retreat, side-stepping and about-facing. The principal lines of attack were practiced with arms.

The natatorium was reopened, and frequented by pupils and students from all classes. The facilities for instruction in swimming are of the best.

Games played by the different grades: Hornet's Nest, Running the Gauntlet, Hare and Hounds—indoors. A description of these games will be furnished in a future number of the COURSE OF STUDY. Other games played: Foot-in-the-Ring, tugging and pulling games between individuals and teams, Indian wrestling. Putting the shot and hurling of grip balls was a favorite practice with the High-School boys. For descriptions, see Vols. II-VII, *Mind and Body*.

The Organization of a Library

Irene Warren Frances Simpson

Cataloguing

When a library has been accessioned and classified, it is not yet in its most convenient form for readers until another record, the catalogue, is made.

A library catalogue is a complete list of all the material owned by a library, whether books, periodicals, pamphlets, music, pictures, or lantern-slides, arranged according to a definite plan and made accessible by printing or otherwise to the uses of the library. The purpose of the catalogue is to afford to readers a means of quick and ready reference, and when properly and intelligently made and used it should show the line of least resistance to the contents of the books on the shelves of any given library. A catalogue may be regarded in two ways; according to (1) the plan on which its entries are arranged, and (2) the external form in which it appears.

The special function and nature of any given library must always determine the plan of arrangement adopted in its catalogue. This plan may be one of two; either an arrangement by general subject, with minute subdivisions under each broad division, which is called in its various forms a systematic, classed, or subject catalogue; or a strictly alphabetical list of authors, titles, and subjects, called a dictionary catalogue. Both have advantages, and both are in use in leading libraries. A large library of scientific bent may, with great propriety, make use of the first or subject form, while a public, school, or circulating library usually finds the dictionary catalogue more convenient for its readers.

A subject catalogue should give in addition to the subject-word used, the author, title, and whatever other information concerning the book the library may decide to impart, and also the call number, giving the location of the book in the library, for the convenience of the reader if the library gives its patrons free access to the shelves, or for the use of the assistant if the open-shelf system is not in use. When the library is a large one, and its field comprehensive, a subject catalogue should be supplemented by an alphabetical list of all the subject-words used, with references from common synonyms not used. An author-list, also arranged alphabetically, is found to save much time and trouble, when placed conveniently near the subject catalogue. The disadvantages of this form of catalogue are apparent, since it must frequently necessitate the consulting of two and sometimes three separate records. Its chief advantage lies in its logical and suggestive arrangement.

The attendants of any library are accustomed to hear and answer one or the other of the following questions: "What books have you on a certain subject?" or, "Have you a given book by a given author?" Occasionally the searcher after truth asks for the book by its title, if that happens to be a striking one, as is often true in the case of fiction. The catalogue should afford to the reader and attendant a convenient and direct means of answering such questions.

A dictionary catalogue, as its name indicates, is an arrangement of author, title, and subject in one straight alphabet, and is regarded by most librarians as the most direct means of answering such questions.

Suppose, for example, a reader is interested in the subject of birds. Either he wishes a particular book on that subject, say Mabel Osgood Wright's *Birdcraft*, in which case he consults the catalogue under W, where he finds the book entered; or he wishes to know what the library has on birds, in which case he turns to the catalogue under B, where he finds not only all of Mabel Osgood Wright's books on birds, but also arranged alphabetically by authors all the books owned by the library on the same subject, with references to books on related subjects, necessitating therefore the consulting of but one list. The advantages of having such a list for consultation hardly need comment.

In compiling a catalogue it is also necessary to determine the external form which it is to take. Formerly, all libraries published printed catalogues in book or pamphlet form. Obviously such a catalogue could never adequately represent the resources of any library at any given time, since during the time required for the compilation, revision, printing, and proof-reading of such a catalogue the library would probably receive numerous additions, necessitating the almost immediate issue of supplementary bulletins. The disadvantage above mentioned of compelling readers to consult several lists in place of one again confronts us, though it is in part offset by the fact that copies of such a catalogue can be multiplied and allowed to leave the library either by sale or otherwise. One of the worst features in connection with a printed catalogue, however, is its expense, which would make it an impossibility for most small libraries, if there were no other objection to its use.

The only alternative is what is known as the card or slip catalogue, in which each book, whether it comprises one volume, a part of a volume, or several hundred volumes, is entered under its author on a stiff pasteboard card, which is provided with some device for fastening it safely in a drawer or case, where it can be consulted with ease, but from which it cannot readily be removed. This method, while it presents some very obvious difficulties, among which may be mentioned the facts that but a limited number of readers can consult it at the same moment, and that it can be used in but one place—the library—presents likewise the very decided advantages of allowing speed in compiling, by means of which the entries may be kept practically up to date, of allowing any number of insertions at any time, doing away with the necessity of printing supplementary bulletins, unless the library chooses to use such bulletins for purposes of bringing itself before the public, and of contributing very materially to an economical administration of the library. The form of catalogue, therefore, urgently to be recommended for a modern library, whether for a school, literary society, or public library, is a dictionary card-catalogue. A few simple rules for compiling such a catalogue will be given in the June number of the COURSE OF STUDY.

References: Spofford, *Book for all Readers;* Plummer, *Hints to Small Libraries:* Dana, *Library Primer;* Cutter, *Rules for a Dictionary Catalogue;* Dana, *Denver Public Library Hand-book.*

Kindergarten Pedagogy

Bertha Payne

During May and June the class will plan outlines which will be the starting-point for selection and adaptation of stories, songs, games, and hand-work in making and picturing for the children of the kindergarten.

We have selected the children of a certain neighborhood near the school to study through observation of their street play and games. By studying their environment, we may gain something in ability to trace the influence of surroundings in shaping their plays, and to find out more nearly what they need.

The neighborhood gives us typical city conditions, save that it is within walking distance of the park and lakeshore, which gives a much larger opportunity for familiarity with natural life. The children's homes are about the average as to means.

The first outline which has been begun is a skeleton plan of subject-matter for a year. Five principles have been worked out that serve as tests of the value of matter offered.

I. It must be a common experience of the mass of the children.

II. It must be of direct interest to all.

III. It must be of immediate help in their lives.

IV. It must be fundamental, leading to future interests and opportunities.

V. It must afford incentives to bodily expression in work or play.

According to these tests, much that is often used in the way of nature subjects, trades no longer followed here, and some Froebellian games must be ruled out for the children in this locality. To illustrate: The trade games of the farmer, miller, and baker get their significance, so far as the children are concerned, not because it is the autumn season, or because they illustrate the great law of interdependence, but because they are human activities that have actually been seen and heard. No matter how interesting or full of meaning these processes of plowing, sowing, reaping, carting, and grinding may be, we cannot make them real enough to serve a very large place in furnishing material for dramatization unless the children have had actual contact with these or similar processes.

The place may be supplied by processes in trade life quite as necessary to the personal and social life of the children, and carrying the same lesson of interrelation.

Another plan will be made more in detail, giving modes of presentation and suggestions for expression in songs, games, picture-making, and constructive hand-work.

One principle that will be kept in mind in these detailed plans is the place given relatively to the incidental and essential.

Some topics are full of suggestion, that is, dramatic in character, and afford incentives and substance for dramatic play and drawing. Other phases of the subject may need building to fitly express the idea, while still others may demand real work. Each subject suggested will be criticised from the point of view that the word "balance" may express.

Froebel's writings will be consulted as reference whenever a principle has been developed by the efforts of the class.

Gardening in the Primary Grades

Flora J. Cooke

In April the Third and Fourth grades planned and constructed a hotbed twelve feet long and forty-one inches wide, and prepared it for use. To do this they were obliged to make a study of seeds, soils, and moisture, as outlined in detail in the April issue of the COURSE OF STUDY. (See Mrs. Atwood's and Miss Van Hoesen's nature study and number outlines for April.)

Each of the primary grades took as laboratory work some phase of the study of germination which the class was to investigate and report upon, the question in every case being to give the plants in the hotbed the best possible conditions for growth.

The seeds were placed under various conditions of temperature, soil, light, and moisture, and their development observed, recorded, and compared with that of the same kind of seeds under different conditions. That mode of expression was used—drawing, painting, or writing—which seemed best suited to illustrate the particular change that had taken place in the plant or seed.

In May the rate and the location of growth will be tested by placing ink-marks certain distances apart upon different parts of the plant and measuring the spaces after a short interval of time has elapsed.

The children will notice that some of the seeds planted come up more quickly than others with the same conditions. Seeking the reason for this will cause them to examine the seeds themselves, their coverings and the amount of stored-up food or energy which they contain.

EXPERIMENT. Force exerted by seeds in swelling; cause of swelling. Energy contained in sprouting seeds. Allow the children, *under careful supervision*, to try to lift a 50-pound stone weight, using both hands.

EXPERIMENT. Place a small quantity of seeds (100 grams) in a cylindrical cup (a piece of iron pipe closed at one end will answer the purpose). Upon the seeds place another iron cup having a small hole in the bottom. The second cup should fit inside the first one and extend an inch or so above its top rim. Fill the second cup half full of water. Upon the top of the inner cup let a bar rest, upon which is hung the 50-pound weight.

The children will understand how the seeds can force their way through the soil when they see them under these difficulties swell sufficiently in one day to raise the inner cylinder ⅛ of an inch from its original position. Thus their interest is directed to the real center of action—the stored-up energy—for the comparison of seeds.

Many of the children have gardens at home, and their experience will be utilized, as far as possible, in making inferences as to the proper treatment of our special plants, only those having been selected which would mature within two months—radishes, lettuce, onions, etc.

Their observations, however, will not be limited to these plants, and simple explanatory experiments will be suggested which the children can perform independently in answer to their questions, and they will be encouraged to report the results of their experiments to the class. They will probably discover: That certain weeds are stronger than our cultivated plants; that certain insects injure the plants; that certain plants need greater care than others; which parts of the plants develop first; use of roots and leaves, etc. They will learn, also, how different seeds germinate—

monocotyledonous, dicotyledonous, etc.; how they differ in their manner of growth, as bushes, climbing, creeping, and self-supporting plants; how they differ as to the edible parts, as root, stem, leaf, fruit, and seed.

The children will work in committees in caring for the contents of the hotbed; each committee being responsible for part of the work, but receiving suggestions from all the other committees.

All the children took part in the preliminary work, in the reading of extracts and adapted notes from United States Agricultural Reports in the determination of the kind of seeds to be used, and in the effort to give them the best conditions for rapid development.

Literature for the Primary Grades

Gudrun Thorne-Thomsen

Pedagogic Class

What does it mean—that never-ceasing cry of our little ones, "Tell me a story"? What is this craving, and what satisfies it?

At the age of three a child enjoys hearing over and over again his daily experiences about animals, people, the locomotives, the street-criers. This world is not a commonplace affair to the child as it is to us. It is all full of wonders, and he yearns to know them.

At no other time are the nursery rhymes so much enjoyed as during this period; the rhythm, the music in the verse, undoubtedly are the great fascination long before the words mean anything. Here also belong the tales with which we all are acquainted in some form or other, the story of repetitions, a joke and nothing more; as, for instance, the story of the pancake, which will be told in next month's outline.

In this wonderful world nothing is too wonderful to the child, and animals talk and act like human beings; man is in fact one with the beasts and the trees.

The child knows his own power to will and to do; to his mind all other things that do, will to do, also; the wind, the sun, the trees, even sticks and stones, seem like himself powers that exert their will; that is why he punishes the chair that hurts him or scolds the wind for blowing off his hat.

In this respect, as in so many others, we find the child nature like that of primitive man.

When the race was young, it knew but little about the laws of nature without and nature within self; but in the human soul was to begin an instinct of wanting to know; there were longings, hopes, and groping for the truth. Everything in man's environment asked him: How? Why? and demanded a reply. The reply is the literature of that day—myth and folklore.

The experience and wisdom accumulated by the race in the past found a lasting expression in the myth and fairy-story; here we have the innermost thoughts and feelings revealed, the religion and art of the time. The characters of the fairy-tale are simply variations of man's own self, and express his ideals and standards of right and wrong. The eternal struggle between good and evil is the great ever-recurring theme of the myth.

Why is it, then, that the child demands the story? It expresses his unconscious longings, hopes, and struggles. He demands that you speak to him in his own language, that you enter into his world with

him, that you give expression to that which he feels but dimly and sees darkly.

If we recognize clearly why we tell stories, it becomes a simple task to determine what stories to tell.

Folklore and myths are our storehouses of material and inspiration. By a thorough study we learn to recognize the essentials in a story, to discern the genuine from artificial additions. We understand that different stories express different phases of life, the serious and the humorous; that there are stories fitted to all steps of development. The teacher learns to look for the significance of the story, and knowing the children, learns also how to adapt the story to their circle of experience.

Among the number of stories which have only a passing interest to the child, there are the masterpieces that wear well, that embody in beautiful language living truths. These should be told often, and should be illustrated and dramatized, so that they may grow and become a vital part of the child's life. Such stories are like all classic art; each individual gathers from them just what he is capable of taking in; to-day the story is perhaps but a pleasing picture, in a year it may have revealed some of its depths. Such stories we never grow too old to enjoy.

The Pedagogic Class has been studying the industrial development of the race—how man has climbed onward step by step, by doing and thinking out how to do better. In the stories the class has an opportunity to study the spiritual growth of the race, the development of ideals from the crudest standards to those of our present time.

Class-work: Stories will be told. Discussion as to:

1. Intepretation.
2. Dramatic expression.
3. Other modes of expression.

Next month several stories, presenting different types, will appear in the COURSE OF STUDY, with a résumé of class-work upon them.

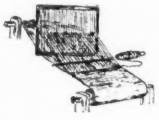
Reading Lessons for the Primary Grades

The Coat that Jack Wears

Written and illustrated by CHARLOTTE PERKINS, of P. T. C. (3 A).

NOTE—The children of the Chicago Normal Practice School had studied weaving, and had manufactured cloth in a crude way—cutting the wool from sheep-skin, washing, carding, spinning, and dyeing it, and weaving cloth on looms which they made themselves. This lesson is a review and summary of the steps in the process.

This is the coat that Jack wears.
This is the cloth, so warm and blue,
That made the coat that Jack wears.



This is the loom, so strong and new,
That wove the cloth, so warm and blue,
To make the coat that Jack wears.

This is the thread that, colored blue,
Was used in the loom, so strong and new,
To weave the cloth, so warm and blue,
To make the coat that Jack wears.

This is the wheel, with its loo, loo, loo,
That spun the thread that, colored blue,
Was used in the loom, so strong and new,
To weave the cloth, so warm and blue,
To make the coat that Jack wears.

This is the wool, carded through and through,
That was spun on the wheel, with its loo, loo, loo,
To make the thread that, colored blue,

Was used in the loom, so strong and new,
To weave the cloth, so warm and blue,
To make the coat that Jack wears.

This is the sheep on which there grew
The wool that, carded through and through,
Was spun on the wheel, with its loo, loo, loo,
To make the thread that, colored blue,
Was used in the loom, so strong and new,
To weave the cloth, so warm and blue,
To make the coat that Jack wears.

This is the man, and his scissors too,
That sheared the sheep on which there grew
The wool that, carded through and through,
Was spun on the wheel, with its loo, loo, loo,
To make the thread that, colored blue,
Was used in the loom, so strong and new,
To weave the cloth, so warm and blue,
To make the coat that Jack wears.

The Dog and his Image

ADAPTED FROM ÆSOP

Literature Series, No. 9

Sport was a greedy dog.
One day he took a piece of meat from a little dog.
He was not hungry, so he started home with the meat.
On the way he came to a bridge over a brook, and looked down into the water.
It was very clear and still, and Sport saw another dog looking up at him.
The other dog had a piece of meat in his mouth.
Greedy Sport wanted that too.

"R–r–r–r," growled Sport.
"R–r–r–," growled the other dog.
"I'll get that meat," thought Sport.
He growled again and showed his teeth.
The other dog showed his teeth too.
That made Sport more angry.
Snap! snap! Down went the meat into the water.
The other dog went away.
Sport looked sadly into the water.
Soon the other dog came back.
He looked sad too.
Sport went slowly home.
Do you think he was a wiser dog?

Iris

Literature Series, No. 10

Flora J. Cooke

Iris' father was the Sun, and her mother was the beautiful Water-drop.

The sun loved Iris very dearly and gave her dresses of beautiful colors.

He made her his messenger to earth.

One day Water-drop and the Sun made Iris a wonderful bridge.

They made it of the seven colors she liked best—violet, indigo, blue, green, yellow, orange, and red.

The bridge looked like a great bow, and it reached from heaven to earth.

When it was let down it was fastened to the earth by a great pot of gold.

Many boys and girls have searched for this gold, but no one has ever found it.

Sometimes Iris comes down to earth in the morning, and then the children sing:

"Rainbow in the morning!
Now, sailors, take warning!"

Sometimes she comes in the evening.
Then the children sing:

"Rainbow at night
Is the sailor's delight!"

When Hiawatha saw Iris' bridge in the sky, he whispered, "What is that, Nokomis?"

And the good Nokomis answered:

"'Tis the heaven of flowers you see there,
All the wild flowers of the forest,
All the lilies of the prairie,
When on earth they fade and perish,
Blossom in that heaven above us."

Rhœcus

Literature Series, No. 11.

Flora J. Cooke

One day as Rhœcus was walking through a forest, he saw an old oak tree just ready to fall. "That fine tree shall not fall if I can help it," he thought. He found a prop and placed it under the tree.

As he turned away he heard a low, sweet voice calling, "Rhœcus! Rhœcus!" He listened. "It is only the wind," thought Rhœcus. But soon he heard it again nearer than before, "Rhœcus! Rhœcus!"

There in the shadow of the tree stood a beautiful maiden. She was the Dryad of the tree, who could live only as long as the tree lived.

The Dryad told Rhœcus that he had saved her life, and bade him tell her what in all the world he most wished for.

Rhœcus looked at the Dryad and saw how beautiful and gentle she was. "Be my friend and never leave me," said he. "That is my greatest wish."

The Dryad said, "Come back at sunset and you shall have your wish."

Rhœcus joyfully said he would come, and hurried away to the village.

There in his play with his mates he forgot all about the Dryad.

But the Dryad did not forget, and as it grew late, she sent her messenger, the bee, to Rhœcus.

Rhœcus did not know that the Dryad had sent the bee, so when it kept buzzing about his face, he grew angry with it and said, "Does it take me for a rose?" And when it came again, he struck it roughly with his cap and bruised its wing. It flew slowly away toward the forest.

As Rhœcus looked after it he saw the red light of the setting sun. Then he remembered his promise and ran swiftly to the tree. But he could not find the Dryad. He called her again and again.

At last he heard her sad voice, saying: "Alas, Rhœcus! I can never see you again. I sent my messenger for you. You were unkind to her. Dryads can only come to loving hearts, and be seen by gentle eyes."

Rhœcus waited in the forest a long time. The moon came up. Then Rhœcus went sadly home. He never saw the beautiful Dryad again.

The Kindergarten

(Outline for May and June)

Anne Elizabeth Allen

The Miracle

Without my window lies a dreary waste;
The ground is bare, the skies are gray;
The morning sun displays its usual taste,
And fails to shine on such a day.

So dark, indeed, the gray earth seems to me
Like some sad, tuneless, tasteless thing,
Uncared for, left to die, let be
By sun and warmth to what King Frost will bring.

Without my window, lo! a miracle appears;
Where once was bare earth, trees all hoary,
A wondrous world of rarest beauty rears
Its marvelous wealth of hidden glory.

All hail! the newborn infant Spring
Awaits your joy, your ever-welcoming breath.
She bids you rise, lift voice and sing;
The earth has risen again from seeming death.
—*A. E. A.*

Response to Calls

With the thought in mind that nature can do more for the education of children than any amount of indoor teaching, we shall spend most of our time during these two months at the lakeshore and in Lincoln Park.

Our correlating center will be the response of all nature to the call for action by the sun, rain, and wind, and we shall closely watch the quiet influence, day by day, of these forces on plant life.

Observations of the birds will be made, and their songs and calls imitated, and if possible interpreted. The wind in the trees, the roaring of the surf, and all the sounds of nature we shall try to open our ears to, and learn to imitate. The lake as a transporting body, with its coasts guarded by life-saving stations and lighthouses, its shores protected from the waves, and sending out its artificial landings; its sailboats and steamboats, with their adaptation to conditions of wind and wave, and their signals, we shall be able to see and watch. Our games will be played in the park, and every plan made to spend as little time as possible in the schoolhouse.

1. Response to calls indoors: School-bell, triangle, piano, voice, sun, rain, etc.

Interpretation of calls. What do all these calls mean?

2. Response to calls in the park:

(a) To call of sun—grass, trees, flowers, ourselves.

(b) To call of wind—as waves, grass, trees, clouds, weather-vanes, boats.

(c) To call of rain—plants, waves, umbrellas, overshoes, rain-coats.

(d) To call of sounds—birds, children, life-saving people.

(e) To signals—lighthouse keeper, life-saving crew, sails of ships (by turning with the wind), weather-vanes.

3. Response of man to calls: Building of lighthouses, breakwaters, life-saving stations, putting sails on ships, building long piers into the water.

Materials: Large blocks, sand, paints, blackboards, fifth and sixth gifts, sticks and beads.

Large blocks, fifth and sixth gifts—building lighthouses, piers, life-saving stations, breakwaters, etc.

Sand—representing lakeshore and action of winds and waves; with blocks, building protecting breakwaters. Selected parts of the park modeled in the sand, showing

relative positions of different parts to each other, and also from time to time changes in its appearance.

Games: Boats (see March COURSE OF STUDY); growing of plant life represented; bird life; movement of waves against a breakwater; wind games; sun games; butterflies, etc.

Stories: *Sleeping Beauty; Bluster, Bright, and Sprinkle* (see April number of COURSE OF STUDY); *Carl and Ponto; Nature's Seed Cradles* (see June number of the COURSE OF STUDY).

Songs: *Summer Song, The Bees' Market, The Sunshine's Message,* Hill's Songs; *Mr. Rooster Wakes up Early in the Morning* and *Pit-a-pat,* Gaynor's Songs; *To the Great Brown House, In a Hedge,* Smith's Songs, Part I; *Rain Coach,* Smith's Songs, Part II; *Dandelion Fashions,* Smith's Songs, Part II.

Instrumental Music: *Five Marches for the Kindergarten,* Eleanor Smith; *Instrumental Characteristic Rhythms,* C. L. Anderson; *Musical Rhythms for the Piano,* A. D. Scammel.

First and Second Grades

Harriet T. B. Atwood

Nature Study: I. Planting of the garden. Owing to the temporary quarters of the school, it seems advisable in order that the children may see the outcome of their work, to plant only such vegetables and flowers in the garden as will mature during the spring quarter. The children's motive in the work will be to provide certain relishes for the daily luncheon, and flowers to be used in decorating the tables. (See Miss Cooke's outlines for April, May, and June.)

II. Study of animal life in Lincoln Park, and in regions visited during field-trips.

1. Painting or sketching of the various animal forms in their natural surroundings. The animals which will probably be most easily observed in the park during May are: (a) our common birds, fish in park lagoons, earthworms, and ants; (b) wild animals confined in the zoölogical gardens.

2. Study of the food of the animals observed, and their ways of obtaining it.

3. Homes and means of protection of the animals studied.

4. Social habits of the various animals.

III. Study of the May landscape by means of water-color sketches. Color records of changes taking place in the trees which were chosen for continuous study throughout the year.

Geography: I. Study of areas visited on field-trips.

II. Classification in the mineral boxes made by the children, of all soil specimens and stones collected on trips.

III. Field-trips—proposed:

1. Visit to the ravine at Lakeside, and the prairie west of Lakeside.

2. Visit to truck farms between Chicago and Evanston.

3. Visit to swamp region south of Eighty-third Street, near Stony Island Avenue.

Art: Painting of animals in their native environments. Modeling of birds and bird-homes. Painting of the May landscape. Color record of bud development, and growth of plants in hotbeds. Painting of spring flowers and other perishable specimens collected on field-trips. Illustration of stories by means of chalk-modeling, painting, and paper-cutting.

History: As the making of dishes was continued in April, the study and casting of agricultural tools could not be completed during that month. The history work for May will therefore be the continuation of work begun in April. (See history plan for April.)

Literature: Whittier, *King Solomon and the Ants;* Saxe, *King Solomon and the Bees; Stories the Sunshine Told,* adapted by Gudrun Thorne-Thomsen; Browning, *The Cricket and the Poet.*

Manual Training: Making of garden stakes. Completion of kites and boats begun in March.

Industrial Art: Weaving of May baskets.

Domestic Science: (See Miss Cooke's outline.)

Correlated Number: Planning of school hotbeds and garden. Calculating the amount of wire needed to inclose the garden. Inking of garden stakes to show depth to which they must be driven. Making of a measuring-rod marked off in centimeters to use in planting seeds and transplanting seedlings from the hotbed. Calculation of force exerted by seedlings in swelling. (See experiments in Miss Cooke's outline.)

Speech, Oral Reading, and Dramatic Art: I. Phonic games. Exercises in articulation based on Bell's vowel table.

Dramatization of bird stories familiar to the children.

II. Poems to be memorized:

1. *The Merry Brown Thrush,* by Lucy Larcom.

2. *The Wind,* by R. L. Stevenson.

Music: (Miss Goodrich.) The work for this month will be a continuation of the spring songs planned for April.

Reading: March Course of Study, *Sunshine Stories.* May Course of Study, *Insect Stories.* Selections from Chase's *Birdland* and Bass's *Animal Life.* Texts of songs: Selections from various First and Second Readers bearing upon the spring subjects.

Writing, Spelling, English: Recording of observations in the spring calendar. Written descriptions of birds and flowers for guessing games. Writing suggestions as to the dramatization of stories. Placing of words in dictionaries. Labeling of specimens in mineral boxes.

Physical Culture: (Miss Crawford.) A full account of the work in physical culture for these grades will appear in the June number of the Course of Study.

References: Jordan and Kellogg, *Animal Life;* Comstock, *Insect Life;* Chapman, *Handbook of Birds of Eastern North America;* Neltje Blanchan, *Bird Neighbors;* Chapman, *Bird Life* and *Bird Studies with a Camera;* Dugmore, *Bird Homes;* Wright and Coues, *Citizen Bird;* Coulter, *Plant Relations and Plant Structures;* Davenport, *Introduction to Zoölogy;* Jackman, *Nature Study and Related Subjects* and *Nature Study.*

Third and Fourth Grades

Gertrude Van Hoesen

Nature Study: The relation of the leaves, stem, and roots to the whole life of the plant.

I. Germination of many seeds.

1. Parts developed: (a) roots; (b) stems; (c) leaves.

2. Source of food for the plantlet in the seed. What is this food? Test for starch. Under what conditions is this food available?

II. Needs of the growing plant—water or moisture, heat, air, light, and soil. Under what conditions must the seed be placed to continue growth after it has exhausted the food stored?

1. How does the plant obtain water?

EXPERIMENT. Place a small plant with a well-developed root and several leaves in a small opening made in a cork, so that the roots are below and the leaves above the cork. In a bottle place a definite amount of water which has been colored. Fit the cork into the bottle and seal carefully with paraffine. Set the plant in the sunlight and leave it untouched for twenty-four hours. How can we tell that the roots have been drinking the water?

2. What becomes of all of the water?

Take another plant similarly fixed, and weigh carefully before placing it in the sunlight. Weigh again the next day. What is the loss? How did the water get out of the bottle when it was sealed?

To answer this question, place over the plant a glass beaker for a few hours. Soon a film of moisture will cover the inside of the glass.

3. Is the water that is transpired from the leaves of the plants in your garden the same in every way as that which is taken up by the roots?

EXPERIMENT. Take a definite amount of water that has been passed through the soil used in the garden. Evaporate it upon a glass. Evaporate an equal amount of water that has transpired from the leaves of the plant. Which leaves a residue? Test residue for constituents. What becomes of this residue in the plant?

To answer this question, dry a plant grown under the same conditions, and burn until only the ash is left. Test ashes for constituents. Do these tests answer the question?

4. What else are the leaves giving off besides moisture?

EXPERIMENT. Submerge an active leaf in water in a glass vessel and expose to light. Bubbles may be seen coming from the leaf surface and rising through the water.

Remove from the light and note the result. Note carefully when the bubbles cease. Bring back into light. Collect gas in a test-tube and test for oxygen. Compare with our own respiration. What do we inhale? What do we exhale? How does this compare with the respiration of the plant?

Geography: THIRD GRADE. The study of the illumination of a large city: (1) Street lamps. (2) Gas. (3) Electricity.

Experiments will be given in the laboratory showing in a simple way how gas is made. This will be followed by an excursion to a gas-plant.

The class has been studying electricity during the last month. Excursions will be made to the electric-light plants in the city.

Compare the advantages of one mode of lighting over another, both in the house and on the street. Compare cost of each.

FOURTH GRADE. The Mississippi Basin. This will be studied both industrially and structurally, the study of structure being necessary to explain the industry.

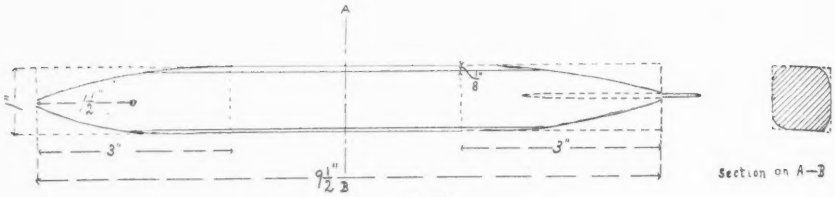
History: THIRD GRADE (MRS. THOMSEN). Miss Champlain's plans in sloyd will show the work in history for the month. Whenever a closer study of the objects to be made is required, the children will study pictures and read descriptions. They will also keep a written record of the work they are doing, for the benefit of succeeding classes.

FOURTH GRADE. A continuation of the study of social condition of the Italians as outlined in the last number.

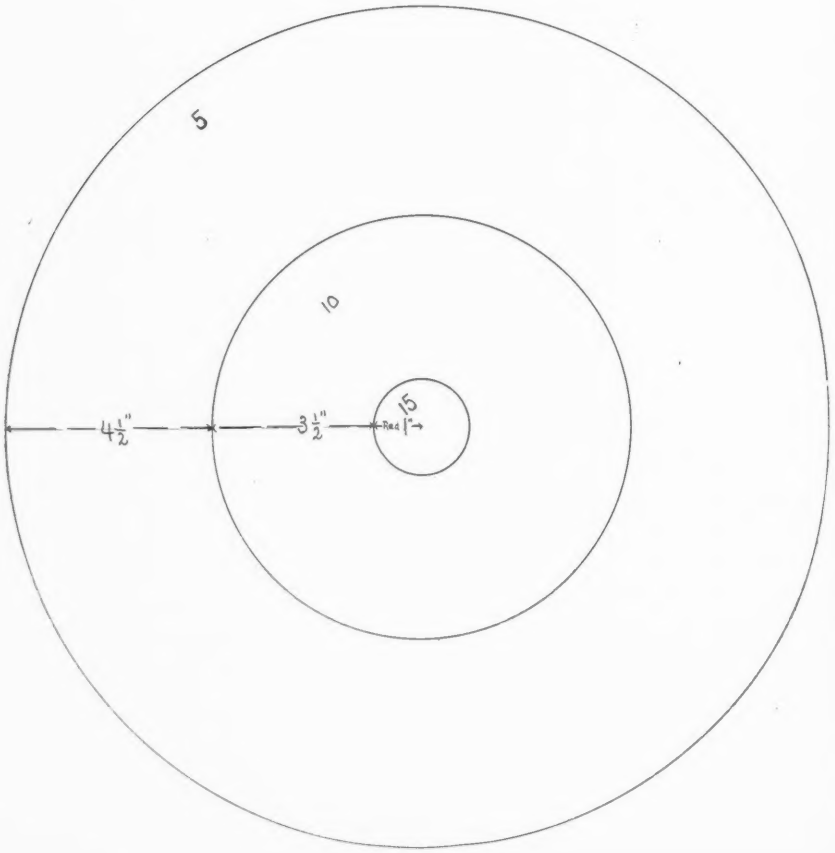
Manual Training: THIRD GRADE. (MISS CHAMPLIN.) In connection with the history, the children are making some of the Greek games, also shields and spears, and later will make the suits of armor, helmets, and chariots. The accompanying drawings show what the children made during April.

The target may be made of soft wood, sufficiently thick to allow the point of the dart to pierce it deep enough to hold it securely till the record of each child, in turn, is made. Straw, bound closely, and covered with burlap, may also be used, or sheets of cork.

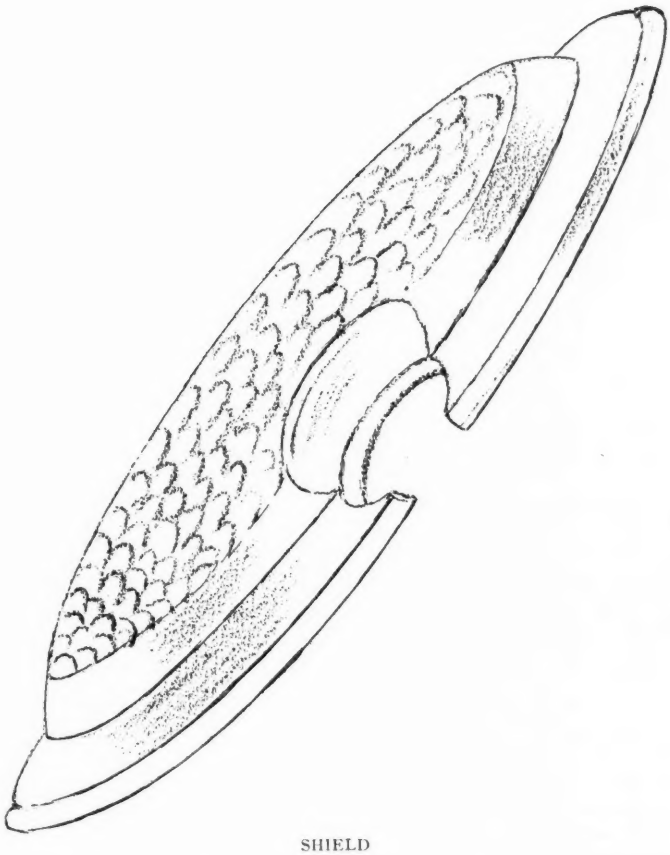
The center, or bull's-eye, is painted one color, and counts 15 for each dart which comes within its limits; the second band, which is a different color, 10, and the outer one, which is the widest, 5. Each child in turn takes all the darts and throws them, standing several feet from the target.



DART



TARGET



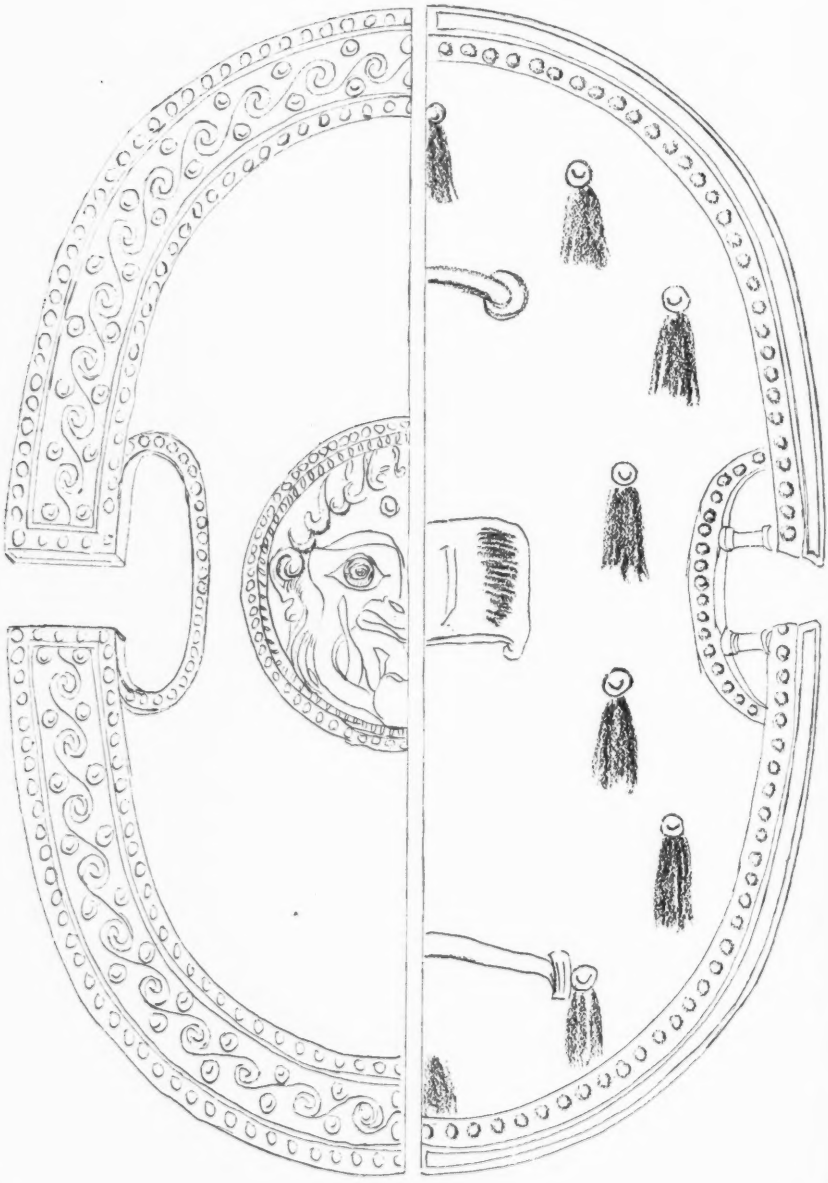
SHIELD

The darts are made of pine, with a heavy carpet-needle inserted in one end, to serve as point, protruding about three-fourths of an inch. At the opposite end four feathers are inserted at regular intervals, one and one-half inches from the point.

The shields are suggestions, both in design and decoration. They will be made of soft wood with the ornamentation painted upon them, and stained to represent leather or metal. The dimensions will depend upon the size of the child who is to use it—not more than two feet long, and a proportionate width. A leather strap, or, if preferred, a wooden handle, may be fastened to the back.

The spear-heads will be cast in bronze, the children making the models in wood, and also making the flask for the casting. The handles, of course, will be of wood. Each child will make his spear as long as his height.

THIRD AND FOURTH GRADES. In their regular manual training work the children will be allowed to make anything they choose and are able to independently plan. The last requirement makes it possible to give them this privilege at the end of the year.



SHIELDS

SPEAR

Music: A continuation of the work planned in April.

Art: Illustrations of scenes in history, geography, and literature, in drawing, both pencil and crayon, and in painting. In clay, records of germination and spring flowers.

Industrial Art: The children are weaving curtains for a miniature theater; the material used is wool-roving. Each curtain is made of three strips, seven inches wide, woven on the hand-looms. They are joined together and decorated with embroidery stitches. Some of the children are designing the drop-curtain. The design is not yet completed. It will be worked in cross-stitch on coarse canvas.

Literature: Stories of Cimabue, Giotto, Luca della Robbia, Raphael, and other great Italians.

French: (MLLE. ASHLÉMAN.) A trip will be taken to Thatcher's Park, River Forest, during May, in search of violets and other spring flowers. At luncheon stories will be told in French about the flowers gathered. The reading lesson, *Le Club Bouquet Fleuri*, which is given below, will afterward be dramatized by the children. (These reading lessons, when dramatized, are subject to changes made by the children themselves.) The pupils of the Seventh and Eighth grades will make tissue-paper flower costumes for the Third and Fourth grades to use in presenting their play.

The children have learned to Sing *La Bergère* (The Shepherdess), and during this month they will be given the following riddle to guess, the answer being, "la bergère."

Enigme

"Je suis dans les champs, à la ville,
A la ferme et dans le palais;
Mes sujets, d'allure tranquille,
Ne commettent pas de forfaits;
Dans les bals je suis à la mode,
Quoique démodée, et pourtant
Je suis une chose commode
Pour le repos d'un grand parent."

Bouquet Fleuri

Scène Première

Le Rouge-gorge (*à Babette sa femme*). Nous sommes invités à chanter au club "Bouquet Fleuri" cette après-midi. Les membres de cette société raconteront une anecdote relative à leur famille. Je me demande, Babette, quelles sont les plus belles fleurs? Ne trouves-tu pas, qu'après le mois de mars nous avons une succession de fleurs qui nous donnent une superbe fête?

Babette. Moi, je les aime toutes. Quand je vois la gentille *Perce-Neige* sortir de la terre longtemps avant que les arbres même

osent montrer leurs petites feuilles, je lui dis, "Ma chérie c'est toi que j'aime."

Quelques jours après je trouve la petite *Fleur du Safran* si faible, si timide. J'ai pitié d'elle, et je lui chante aussi une chansonnette pour lui faire oublier le vent. Tout en chantant il me semble que c'est elle qui est la plus belle parmi les fleurs. A peine ai-je fini de chanter qu'un parfum exquis m'attire, et voilà l'aimable *Violette* qui cause avec la brillante *Primevère.*

Maître Rouge-gorge. En effet, Babette, tu as raison; tu as presque toujours raison, ma petite femme.

Babette. Maître Rouge-gorge, regarde donc ce rayon de soleil. Si tu ne te dépêches pas, nous arriverons trop tard au club "Bouquet Fleuri."

Scène Deuxième

(Maître Rouge-gorge et sa femme sont perchés sur une branche. Ils écoutent attentivement les anecdotes du club "Bouquet Fleuri.")

Anémone. Abandon voilà mon autre nom. Voulez-vous savoir pourquoi je suis livrée sans défense aux dures caresses de Borée, et pourquoi je fleuris avant le printemps? Eh bien, j'étais la plus belle parmi les nymphes qui ornaient la cour de Flore. Vous savez que Zéphyre et Borée sont toujours en guerre.

Malheureusement pour moi, ils se mirent à m'aimer tous deux. Flore découvrit que j' étais sa rivale dans le cœur de Zéphyre. Elle me changea en une plante qui fleurit avant le printemps, et Borée parceque je ne l'aime pas m'agite, m'entr'ouvre, et de dépit, me fane et disperse souvent mes pétales au loin.

Babette (*essuyant une larme*). Pauvre Anémone, je viendrai souvent te chanter mes plus gaies chansons.

La Pervenche. Les doux-souvenirs, voilà mon symbolisme parmi les hommes. Probablement ce sont mes fleurs d'un bleu de ciel assez vif qui éveillent les souvenirs.

J'ai honte de ne pouvoir vous raconter une histoire. Pourtant je suis fière d'une chose; j'étais la fleur favorite de Jean Jacques Rousseau.

Maître Robin. Un grand poète t'a chantée—Chateaubriand. Ecoutez. (Il se met à chanter.)

"Te souvient-il de cette amie
Tendre compagne de ma vie—"

(Il s'arrête). Miséricorde! j'ai oublié la dernière partie.

(*Daphné-Bois-gentil.*) J'aime plaire à tout le monde. On dit que je suis coquette. Je suppose que c'est parceque je me pare de ma robe rouge de printemps au milieu des neiges. Je vais vous dire un secret: dans mon écorce je renferme un principe vésicant qui est d'un emploi fort dangereux.

Primevère. Oh, Daphné! j'ai honte de toi! Quel horrible secret. Voici ce qu'un poète dit à mon sujet:

"La primevère sort de l'herbe,
Déployant ses grappes en fleurs.
Que lui sert son luxe superbe?
La pauvrette n'a pas d'odeur."

La Tulipe. Moi, non plus je n'ai pas d'odeur. Pourtant parmi les Turcs, c'est la marque de la plus haute estime que de m'envoyer en présent.

En Orient, je suis regardée comme l'emblême du printemps. C'est au mois d'avril que se célébre ma fête, "la fête des Tulipes."

On construit dans la cour du sérail des galeries en bois, et l'on dresse des bancs sur lesquels on range en amphithéâtre une quantité prodigieuse de carafes garnies de mes sœurs.

Ces vases sont entremêlés de flambeaux, et sur les gradins sont placées de belles cages remplies d'oiseaux. De distance en distance de grosses boules de cristal contiennent des essences de différentes cou-

leurs. Au centre de la cour est le pavillon du sultan, devant lequel sont étalés les présents que les grands dignitaries offrent à sa Hautesse. La musique et les danses terminent cette fête.

Maitre Rouge-gorge. Dis donc, Babette! Il nous faut aller en Turquie voir cette fête.

Babette. Oui, mais pas cette année. Mademoiselle Violette, n'avez vous rien à dire? Je vais vous chanter une chanson avant de partir.

Violette. Les Grecs et les Celtes disent que je suis l'emblême de l'innocence et de la virginité. J'ai toujours décoré les cercueils de leurs jeunes vierges.

On prétend aussi que Vénus, qui est très belle, après avoir épouser le laid Vulcain ne voulait pas le suivre. Alors Vulcain s'est fait une couronne de mes sœurs, et la belle déesse, charmée de leur doux parfum sourit à Vulcain et écouta ses protestations d'amour.

Babette et Rouge-gorge (*se mettent à chanter*).

"Quand Flore, la reine des fleurs,
Eut fait naître la violette
Avec de charmantes couleurs,
Les plus tendres de palette,
Avec le corps d'un papillon
Et ce délicieux arôme
Qui la trahit dans le sillon:
'Enfant de mon chaste royaume
Quel don puis-je encore attacher,'
Dit Flore, 'à ta grâce céleste?'
'Donnez-moi,' dit la fleur modeste,
'Un peu d' herbe pour me cacher.' "

Fifth Grade

Willard Streeter Bass

NOTE: Part of the work outlined below was done in the month of April.

History: The subject for the month will be the French in North America. The following topics will be considered:

I. Discoveries and early explorations.

II. Industrial and social character of the colony.

III. Expansion of the colony through the entire St. Lawrence and Mississippi river basins.

IV. Points at which this expansion met the growth of the English colonies.

V. The conflict between the French and English.

Stories will be told which best typify the spirit, methods, and aims of the French explorers, and which are of most importance in establishing the claim of the French to the territory which they occupied. The stories selected are Champlain's first trip to the lake which bears his name and his fight there with the Iroquois, Joliet's and Marquette's discovery of the Mississippi, and La Salle's journey to the mouth of that river.

Besides the love of exploration which the sixteenth-century Frenchman possessed to a remarkable degree, three motives animated the French in the efforts to colonize the New World. They were the establishment of a transatlantic French empire, the conversion of the Indians, and the acquisition of wealth through the fur trade. Every French settlement contained some expression of these motives, and the children will take a typical settlement, such as the mission at Michilimackinac, and study its life and organization with some minuteness. The home life, industries, architecture, and government will be compared with that of the English colonies studied earlier in the year.

The extent of the English and French

colonies in 1745 will be studied, and the great importance of the Appalachian Mountains in separating the two constantly expanding civilizations will be observed. The geography of the region will be studied and the points of strategic importance determined. The children will see that the control of the natural passageways from the east to the west will be of primary importance, and that the points which control these routes will be desired by both sides. Such points are: Niagara and the fork of the Ohio, controlling the routes to the great West; Lake Champlain, controlling the easiest and most direct route to Canada, and Quebec, the gateway to the whole of the French possessions.

The study of the final conflict should be the study of the struggle for the four strategic points named above. The story of Braddock's expedition against Fort Duquesne will be told, and the valuable services of Colonel Washington included. The final capture of the fort by Forbes in 1758 will also be told. The attempt of the English to take Ticonderoga in 1758, their defeat, and their success in the following year, will next be told. The almost simultaneous success of the English at Niagara will be noted, but attention of the class will be centered upon the dramatic struggle of Wolfe and Montcalm for the possession of Quebec. The situation of Quebec and its natural defenses will be made as vivid as possible. The long struggle of the English to gain a position on the heights and their despairing condition, the last desperate attempt, the battle, and the death of the two generals, will all be described as vividly as possible, and the children made to realize the heroism displayed by both French and English.

Art: The most picturesque scenes which may be considered representative of great movements will be described to the children with as much detail and vividness as possible. Pictures of costumes, architecture, boats, and landscapes will be shown whenever available. The children will then represent their conceptions of these scenes in blackboard drawings, water-colors, or clay. The scenes selected for this purpose are Champlain at the battle with the Iroquois, the mission at Michilimackinac, La Salle raising the cross at the mouth of the Mississippi, Washington at Braddock's defeat, Montcalm at Ticonderoga, Wolfe ascending the heights at Quebec.

Writing: The class will write out the story of every important event which is told or read to them, and an attempt will be made to have this series of narratives when finished form a fairly connected story of the French in North America.

Constructive Work: The class will construct a model in pasteboard, wood, etc., of a typical French settlement, selecting for this purpose either the mission station at Michilimackinac or the Indian village at Starved Rock.

Oral Reading: Selections from *The Seats of the Mighty*.

References: Hart, *Source-Book of American History*, pp. 96-98, 103-104, 105-107. Winsor, *Narrative and Critical History of America*, Vol. IV, pp. 103-316, especially pp. 120 and 243, Vol. V., especially Chapter VIII; Bourinot, *Canada;* Fiske, *The Overthrow of French Power in America*, Harper's Magazine, Vol. LXV, pp. 99-112; Parkman, *Pioneers of France in the New World*, pp. 346-360, *La Salle and the Great West*, Chapters III, V, X, XVI, XX, and *Montcalm and Wolfe*, Chapters V, VII, XX, XXII, XXV-XXVII; McMurry, *Pioneer History Stories of the Mississippi Valley*.

Geography: The subject for the month will be the study of the regions of North America discovered and colonized by the French, and of the location and topography of the strategic points about which the

principal struggles of the French and Indian War occurred. The work will in general be kept slightly in advance of the work in history, and will furnish a background for the historical narrative and a clew to the cause of many important events.

The class will first review the work which they have done upon North America as a continent, and will model it in sand. The maps should show the two great slopes of the continent, the interruption of the eastern slope by the Appalachian Mountains, the great central plain divided into the great river basins of the Mississippi, the St. Lawrence, and the Mackenzie and rivers flowing into Hudson Bay.

The basin of the St. Lawrence will then be studied in detail. The topography of the region will first be considered, and the children, gathering their information from maps, pictures, reading, and especially from large blackboard and sand maps made by the teacher, will model the region in sand and trace on it the routes of the early explorers, Cartier, Champlain, etc. Pictures of the most striking scenic features will be shown and drawn by the class, and some time will be spent in the study of Niagara Falls, their appearance, their cause, and their probable future.

The Great Lakes will furnish the next topic. The method of their formation will be considered in the light of the work done last fall on glaciers. The great size of the water surface in proportion to the area drained will be noticed, and attention given to possible sources of the water supply. Lastly, the climate and soil, the vegetable and animal life which these determine, and the influence of them all upon the French settlers will be considered.

The basin of the Mississippi will then be studied in the same manner. The work of erosion, the flood plains, the delta, will be noticed and compared with the corresponding features of the St. Lawrence. The children will model the river basin in sand and trace out the routes of Marquette and Joliet, and of La Salle, locating and modeling with greater care the places of their more important adventures. The soil and climate will then be compared with those of the St. Lawrence basin. The causes which produce the difference in climate, such as distance from the equator, the returning trade winds, the polar current, will be sought for, and the effect of the differences in both soil and climate upon the early settlers and later commercial development will be considered.

The Appalachian Mountains, which formed the great barrier separating the English from the French, enabling each to obtain a firm foothold in America before coming into conflict with the other, will be the next subject for discussion. The character of the highland and of each of its slopes will be studied in detail. The lowest points in the range will be noticed, and their importance in forming the easiest routes of travel from east to west emphasized. The points which control these routes will be determined, and the children will be asked to select the points for whose possession they think the great struggles between the French and English will occur.

The topography of strategical points such as Quebec, Ticonderoga, and Niagara will be studied in detail by means of pictures and descriptions, and will be drawn or modeled by the pupils.

References: Carpenter's Geographical Readers, *North America*, pp. 135-143, 150-159, 172-179, 195-203; 306-327; Tarr and McMurray, *North America*, pp. 234-238, 351-370, 26-38.

Nature Study: METEOROLOGY. The weather record will be continued as in previous months. The construction and use of the rain-gauge will be discussed this month,

and a record of the rainfall kept. The average rainfall for this month will be found from the government records, and compared with the amount of the present year. The observations with the skiameter will be continued, and the area of level ground covered by a beam of sunshine of given cross-section compared with that covered by a beam of the same cross-section last month, while the average temperatures of the two months will be compared at the same time.

Botany. The work for the month will be a study of germination. The class will plant various kinds of seeds, such as corn, beans, peas, grains, grasses, etc., in various conditions, and observe and record their growth by means of drawings and paintings. They will attempt to discover under what conditions of heat, moisture, light, soil, and air, germination is possible.

They will also plant the roots of several biennials, such as carrots and parsnips, and observe and record the manner in which growth begins from these.

They will continue to observe the growth of the buds on trees, and make frequent paintings both of the appearance of the buds and of entire trees. Each pupil will take a single tree and watch with especial care its growth throughout the season.

Physics. The great work done in nature at this time by heat makes a means of accurately measuring temperature very necessary. The class will therefore perform a few experiments to enable them to understand the principle upon which the thermometer is based.

Each pupil will take a small glass bottle, fill it with water, insert in the top a stopper through which a piece of glass tubing eight or ten inches long has been passed. He will then immerse these in larger vessels of cold and hot water, and watch the effect upon the water in the tube. This will show the principle of the ordinary thermometer.

The principle of the air thermometer may be shown by putting only a little water in the bottle, and making the glass tube extend nearly to the bottom of the bottle. The pupil should now place this apparatus in cold and hot water, watch movement of the water in the tube, and compare the sensitiveness of this apparatus with that of the water thermometer.

Painting: In no way can the record of the changes in the germinating seed and in the outdoor world be so quickly and accurately made as by color; hence the pupils will have almost daily recourse to their colors for the purpose of making some of these records.

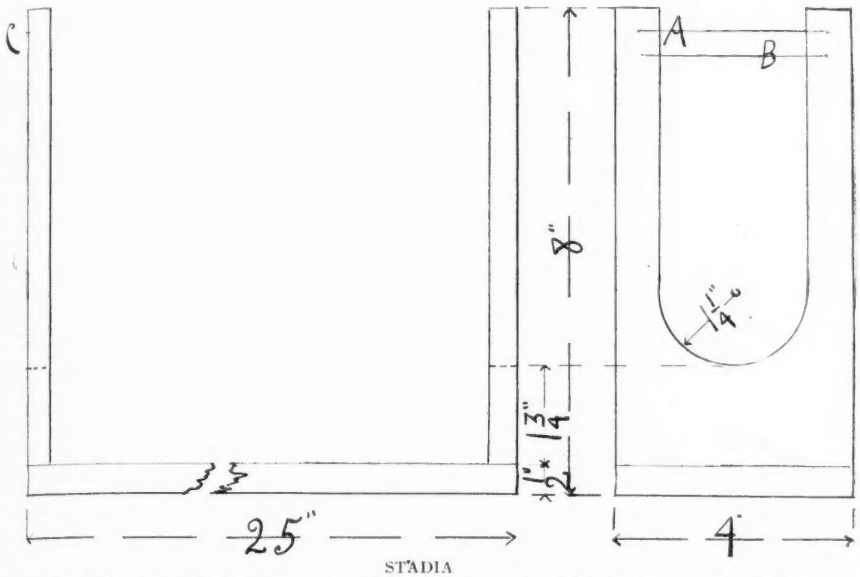
Writing: Such of the records as cannot be wholly told by painting or drawing, e.g., the inferences drawn from an experiment, will be kept in writing.

References: Hammel, *Observation Blanks in Physics*, pp. 29–31; Jackman, *Nature Study in the Grammar Grades*.

Number: The problems previously described necessary for interpreting results of skiameter and temperature observations will be continued.

The class has found that moisture is an essential for plant growth. They will record the rainfall, and compute and measure out the quantity of water falling on a four-inch square during the month, comparing it with the average of the last thirty years.

The Fifth Grade will also assist in the work of surveying in Lincoln Park under the direction of the mathematics department. Their work will consist of measuring straight lines by chaining and of angles with the plane-table, and plotting the measurements to scale. They will also use the home-made stadia to measure distances which cannot be chained. The construction of this apparatus is described below. The method of its use is as follows:



STADIA

Stock, 5/8-inch pine; A, B, C, threads; A and B are 1/4 inch apart; A and C, 1/4 inch from top of uprights.

By looking through the back slit between the strips at *C*, first toward the upper thread, *A*, and then at the lower one, lines of sight may be directed toward a remote object at such an angle with each other that the distance of the object sighted will be 100 times as great as the length of the part of the object included between these lines of sight. Measuring the space, therefore, the distance of the object becomes at once known, and vice versa.

Manual Training: The class will work in twos, and every two will make a simple stadia for use in surveying, in accordance with the following directions:

From surfaced inch-stuff, cut two pieces according to the dimensions given in the drawing. To one attach two strips of tin or brass, as shown at *C*, and to the other fix two parallel black threads 1/4 inch apart as shown at *A* and *B*. From the same stuff cut, square, and surface a board 25 inches long, and nail the former two pieces to the latter.

Music: (MISS GOODRICH). *May Song*, Modern Music Series, Third Book; *Song of May*, *The Wood Birds*, Modern Music Series, Second Book; *Sword Song*, Songs of Life and Nature.

The *Sword Song* may prove expressive of the chivalric, adventurous spirit of the French explorers and men-at-arms of the period which the history of this month will develop. Considerable time will be spent upon the religious and patriotic songs for Decoration Day exercises.

Sixth Grade

Edith Foster Flint

Geography: The subject for the month is the British Isles. This subject both follows closely on that of the preceding two months — Europe — and serves as a background, and, in some ways, an explanation, for the literature studied at this time.

The children will notice the configuration of the island-group, and its nearness to the mainland, and will be told something of its previous connection with the continent. Then upon an outline map, upon which nothing but coast-lines and rivers are shown (the language map on page 24 of Longmans' *New Atlas* will serve in default of a larger), they will note:

1. The shore-lines.
2. The rivers—their length and direction.
3. The latitude.

They will at once notice:

1. The sharply indented west coast of both Great Britain and Ireland.
2. The flow of the majority of the rivers of Great Britain to the east. Without reference to a physical map they will infer from (2) that the watershed in Great Britain is, in general, close to the Atlantic side. This inference will be confirmed by reference to appropriate maps.

Bearing in mind now the slope of the land, the children should be able to reason out one cause of the sharply indented west coast—rapid erosion down steep slopes. The other cause — subsidence —they can also work out, with assistance, and with the help of the geographical laboratory in the basement.

After this they will consider the matter of climate, and will note that the country situated between the same parallels of latitude on our side of the ocean is Labrador, an extremely bleak region. The cause of the great difference in temperature—the Gulf Stream—will then be discussed. Just how this current, in conjunction with the mountains and lowlands of the island, affects their temperature and rainfall will be worked out, and its importance to the scenery, agriculture, and social life of the region demonstrated.

Finally, the situation regarding slope, rainfall, and coast-line being in hand, the class will consider the subject of river-erosion. The treatment will follow the main heads of the outline for the Eighth Grade in the COURSE OF STUDY for October.

The fact that the Celts, of whom Arthur, mythical or real, stands as the exemplar, were driven by the Saxons, who landed easily in the east, always to the mountains, will serve to make vivid to the children the idea of the highland and lowland regions.

References: Longmans, *New Atlas;* Mills, *International Geography; Encyclopædia Britannica,* articles on *England, Ireland, Scotland.*

Nature Study: (See outline for Seventh and Eighth grades.)

Number Work: The number work will be based on the geography and nature study.

Literature: It has already been pointed out (COURSE OF STUDY for April) that the history subjects for the Sixth Grade have, up to this time, been deficient in literary material suited to the needs of the grade.

In order to restore the balance, therefore, the time for history this month will be allotted almost exclusively to literature, such history only being introduced as will serve to afford necessary explanations.

Already, during the preceding month, considerable time has been spent in reading and discussing *The Vision of Sir Launfal* and the opening chapters of *Ivanhoe*. These works, and particularly the latter, of course, though written for older heads, have been read with intense interest by the children, and *Ivanhoe* has aided immensely, not only in making real the time of the Crusades, but in giving specific information as to manners, customs, dress, and buildings. Scott's long descriptions, so inartistic from the literary point of view, have been of great help to the children. Before this is printed probably all of *Ivanhoe* will have been read by every child, partly at home and partly in the classroom. Some of the more dramatic scenes, such as *The Tournament* (Chapters VII and VIII), *Robin Hood the Archer* (Chapter XIII), *The Storming of Front de Bœuf's Castle* (Chapter XXIX), and *Rebecca's Champion* (Chapter XLIII), will have been read by the children in class and discussed in detail. If time serves, they will also have read the scene from *The Talisman*, wherein Richard is attended by the Saracen physician, and the scene between Richard and Saladin in Saladin's pavilion. This latter will have been an especially good illustration of the fact that there can be knightly enemies.

For May, the main subject will be the King Arthur legends. These legends, not to be trusted for facts, but of immense value as indications of the manners and ways of thinking of our ancestors—matters more important historically than battles and successions—should be part of the mental furniture of every child. It seems best to take as a text Malory's rendering as simplified by Lanier in *The Boys' King Arthur*. Charles Morris has an edition (pub. W. W. Giddings, London, 1892; 3 vols.) which gives a more orderly arrangement and cuts out repetitions and anachronisms, as well as puts the whole into very decent modern English. But the true flavor is absent, and it would seem better to have the children get as near the actual source as possible. Therefore, Morris and Bulfinch will serve only as reference, and, if necessary, explanation.

The portions of Malory selected for reading will be those dealing with:

Arthur's Coming.
His Sword Excalibur.
His Wife Guinevere.
His Establishing of the Table Round.
Merlin's Fate. (See Bulfinch for Merlin's previous history.)
Lancelot.
The Quest of the Holy Grail.
Lancelot and Elaine.
The Passing of Arthur.

It is probable that the last will be read to the children from Tennyson, for though they are perhaps not old enough to read it understandingly themselves, another could make it both intelligible and effective to them.

References: Morris, *King Arthur and the Knights of the Round Table;* Bulfinch, *King Arthur and His Knights;* Charles Mills, *Chivalry;* Racinet, Vol. IV (for costumes, arms, armor).

Hand-Work: In connection with their study of chivalry and the Crusades the children have been writing an original story about the adventures of a certain Sir Simon de Puttenham, his son Ralph, his daughter Margery, and his gardener's son. The boy goes as a page on a pilgrimage to the Holy Land, the gardener's son acting as his attendant. The difficulties which they and their party encounter

have served to show the children one great cause of the Crusades.

This story, then, or an incident from it, each child will write on parchment paper of appropriate size and shape, and will then proceed to make into a book, in this wise: Ornamental alphabets will be found in the library and in books at home, from which each child will choose letters according to his taste, to form the title of his own book—the title to be chosen by himself under criticism, and the letters to be done in color. Then, in painting hours, frontispieces will be done in color, illustrating some important scene or incident. Meanwhile each child will have made a design for a cover, which he will either weave in heavy silks or embroider, as he chooses. When this part of the work has been well started, it can be continued during regular lesson periods, while the teacher reads aloud. Finally, the children will bind the whole into a book. The best production will be voted upon and given to the library.

French: (MLLE. ASHLÉMAN.) The children of this grade have been studying for some time the subject of chivalry. During the month of May dramatic incidents from the life of Louis IX., one of the strongest types of chivalry, will be adapted from the annals of Sire de Joinville, thus relating the history and literature of France. In memorizing and acting out these incidents, the children will get the French ideal of chivalry.

The following charade will be given them to guess:

Charade

"Verbe étant mon *premier*, complément mon *second*,
Si l'on veut accomplir cet acte, sans un pont,
Quand la rivière est grande, il faut beaucoup d'audace;
L'entier est un oiseau que je crois peu rapace."

Saint Louis

"Mieux vaut mourir que mal faire."

[AVERTISSEMENT: Saint Louis devait être le plus digne représentant et le serviteur le plus dévoué des Croisades. La sixième Croisade fut l'œuvre personnelle de Saint Louis, non le fruit d'un élan populaire.

Tous les chroniqueurs du temps, tous les historiens de son règne, ont célébré sa charité, sa piété, et l'ont admiré pour sa bienfaisance. Saint Louis ne se bornait pas à fonder et à dôter des hôpitaux, des hospices, des asiles; il payait de sa personne dans sa bienfaisance et ne regardait aucun acte de charité comme au-dessous de la dignité royale.

Tous les jours, partout où le roi se trouvait, deux cents pauvres recevraient chacun deux pains ou du poisson pour un repas. Les mères de familles avaient un pain de plus par tête d'enfant. Outre ces deux cents pauvres nourris à l'extérieur, quatre-vingts autres étaient chaque jour introduit dans l'hôtel. Trois d'entre eux se mettaient à table en même temps que le roi dans la même salle. "Maintes fois," dit Joinville, "je vis qu'il leur taillait leur pain et leur donnait à boire."

Lorsqu'il avait déjà vingt-quatre ans quelques-uns de ses principaux vassaux levèrent une armée de croisés. Saint Louis les encouragea et voulut que son connétable servît en son nom dans cette guerre.]

Scène Première

(*Pontoise, 1244.*)

Personnages: Saint Louis, âgé de vingt-neuf ans. Blanche de Castille, sa mère. Marguerite de Provence, sa femme. Robert d'Artois et Charles d'Anjou, ses frères. Guillaume d'Auvergne, évêque de Paris. Pierre de Cuisy, évêque de Meaux. Elite de la noblesse.

Scène: Chambre à coucher royale.

Epoque: Commencement du treizième siècle.

Saint Louis est étendu sur un canapé; sa mère aidée de sa femme le soulève doucement et lui donne à boire.

Saint Louis. Je suis gravement malade, ma mère. (Il regarde sa femme.) Ma

LE SIRE DE JOINVILLE
D'après la statue de M. Bra (Musée de Versailles)

pauvre Marguerite, je crois que ma dernière heure est venue. Qu'on appelle tous mes familiers.

(Blanche de Castille fait signe à Robert d'Artois. Il sort. Quelques moments après les serviteurs du roi entrent et s'agenouillent près de la porte.)

Saint Louis. Ma dernière heure est venue. Je vous fais appeler pour vous remercier de vos bons services, je vous recommande de bien servir Dieu. Faites tout ce qu'un bon chrétien doit faire. (On entend des sanglots.)

Une dame de la cour. Il retombe sur son oreiller sans mouvement. Il est mort! Il me faut tirer le drap sur ce visage adoré.

Une autre dame de la cour. Je vous en prie, ne le couvrez pas, il a encore l'âme au corps.

(Saint Louis soupire, il étend les bras, et dit d'une voix creuse.)

Saint Louis. Le Seigneur m'a visité, par la grâce de Dieu, celui qui vient d'en haut m'a rappelé d'entre les morts.

Guillaume d'Auvergne, Pierre de Cuisy, je vous commande de me mettre sur l'épaule la croix du voyage d'outre-mer. (Blanche et Marguerite font un geste de protestation et s'agenouillent près de lui.)

Blanche. Mon fils, à genoux je vous conjure d'attendre votre guérison.

Marguerite. Mon roi, mon époux, une fois guéri vous ferez ce qu'il vous plaira!

Saint Louis. Je vous déclare que je ne prendrai aucune nourriture que je n'aie reçu la croix. (Guillaume, l'évêque de Paris lui donne la croix. Saint Louis la reçoit avec transport. Il la baise et la met sur sa poitrine.)

Scène Deuxième

(*Trois ans plustard, 1247.*)

Personnages: Saint Louis, Blanche de Castille, Marguerite de Provence, conseillers, laïques.

Evêque de Paris (*à Saint Louis*). Monseigneur roi, rappelez vous que, lorsque vous avez recu la croix, lorsque vous avez fait soudainement et sans réflexion ce vœu redoutable, vous étiez faible, et pour dire vrai, d'un esprit troublé, ce qui ôtait á vos paroles le poids de la vérité.

Evêque de Meaux. Le seigneur pape vous accordera volontiers une dispense. A qui nous laisserez-vous, nous tous, faibles et désolés?

Blanche de Castille (*s'avançant avec un sourire*). Si vous restez la terre Sainte n'aura pas à souffrir. On y enverra plus de troupes que vous ne pourriez y en conduire vous-même.

Saint Louis (*attentif et ému*). Vous dites, que je n'étais pas en possession de mon esprit quand j'ai pris la croix. Eh bien, comme vous le désirez, je la dépose, je vous la rends (portant la main à son épaule, il en détache la croix, disant). La voilà seigneur évêque, je vous remets la croix.

(Les assistants se félicitent, le roi change tout à coup de visage et dit.)

Saint Louis. Mes amis, maintenant, à coup sûr, je ne manque pas de sens et de raison; je ne suis ni faible, ni troublé dans mon esprit. Je demande qu'on me rende la croix. Aucun aliment n'entrera dans ma bouche jusqu'à ce qu'elle soit replacé sur mon épaule.

Blanche de Castille (*essuyant ses larmes, d'une voix défaillante*). Prenez donc l'écharpe et le bâton de pélerin (l'embrassant)—beau, tendre fils, jamais je ne vous verrai plus, le cœur me le dit bien!

Marguerite de Provence (*vivement*). Vous m'emmènerez avec vous; je déclare que jamais je ne me séparerai de vous!

Scène Troisième

(*Mansourah*).

[AVERTISSEMENT: Les croisés s'embarquèrent à Aigues-Mortes et se rendirent en Egypte. Ils eurent d'abord quelques succès: ils prirent Damiette et s'avancèrent vers le Caire. Mais, la peste ravagea l'armée royale. Atteint lui-même de la contagion, et dans l'impossibilité de se défendre, Louis IX. prit le parti de capituler avec tous les chevaliers qui l'accompagnaient. La fermeté et la grandeur d'âme du saint roi étonnèrent ses ennemis.]

Le Sultan Malek-Moaddham (*à Saint Louis qu'il vient de délivré de ses chaines*). Pour prix d'une trêve et de votre liberté, je demande la reddition immédiate, de Damiette, une forte rançon, et la restitution de plusieurs places que les chrétiens tiennent encore en Palestine.

Saint Louis. Je ne puis disposer de ces places; elles ne m'appartiennent pas. Les princes et les religieux chrétiens qui en sont maîtres peuvent seuls les garder ou les rendre.

Le Sultan (*irrité*). Je vous ferai mettre à la torture, ou je vous enverrai au khalife de Bagdad, qui vous retiendra en prison pour le reste de vos jours.

Saint Louis. Je suis votre prisonnier; vous pouvez faire de moi ce que vous voudrez.

Le Sultan. Vous vous dites prisonnier, et je crois en effet que vous l'êtes; mais vous me traitez comme si vous me teniez en prison.

St. Louis. Je payerai volontiers 500,000 livres pour la délivrance de mes gens, et je rendrai Damiette pour la déliverance de ma personne, car je ne suis pas homme qui se doive racheter à prix d'argent.

Le Sultan. Par ma foi, le Franc est large de ne pas marchander sur une si grande somme.

Scène Quatrième

[AVERTISSEMENT: Après sa délivrance Louis IX. passa quatre années dans la Palestine. La mort de sa mère le rappela en France. Pendant quinze ans il consolida l'ouvrage de la

régente. Une dernière croisade l'enleva de nouveau et pour toujours à l'affection de son peuple. A peine avait-il débarqué à Tunis que la peste attaqua et décima l'armée.]

(Saint Louis, atteint de la fièvre, est étendu sur le lit dans sa tente.)

Personnages: Saint Louis; Philippe le Hardi, son fils; Isabelle, sa fille; le roi de Navarre, son gendre; conseillers.

(Tout le monde est agenouillé près du lit.)

Saint Louis. Donnez-moi des nouvelles de mon fils, Jean Tristan.

Philippe (*son fils aîné*). Mon père, il vient d'expirer.

(Saint Louis joigne les mains et prie silencieusement. Après un moment de silence il se lève, regarde autour de lui, aperçoit sa fille Isabelle, qui est en larmes au pied de son lit.)

Saint Louis. Très chère fille, pensez-y bien; beaucoup de gens se sont endormis en folles pensées de péché, et le matin ne se sont trouvés en vie. Voici, très chère fille, des instructions que j'ai écrites pour vous, pour mon fils, Philippe, et pour vous mon gendre, roi de Navarre. (Il retombe sur les coussins, puis se soulève et à voix basse.) Seigneur, aie merci de ce peuple qui demeure ici et ramène le en son pays! Qu'il ne tombe pas en la main de ses ennemis—(Il ferme les yeux.) Jèrusalem, Jérusalem nous irons à Jérusalem.

Seventh and Eighth Grades

Nott William Flint

History: After studying the Cave Men, the Britons, the Romans in Britain, and the Jutes, Angles, and Saxons, the class comes now to the Normans and their conquest of England. So far in our inquiries we have paid small heed to the monotonous succession of kings, or to the vexing political changes, upon which most of the history text-books center. The people — what they were, how they lived, and what they did — a knowledge of the people is what the class has been aiming at. But in the Norman Conquest, at every twist and turn, the student's eye catches the figure of a stark and impetuous man — Duke William of Normandy. And so for this month the children's interest will be turned upon one man, who will be to them, as far as the teacher can make him so, a real and vivid person. The subject for the month might be called: William the Conqueror.

THE NORMAN CONQUEST.

I. William the Conqueror.

1. His birth: Son of Robert of Normandy and a tanner's daughter.

2. His boyhood. In this study the teacher can if he sees fit introduce the institution of chivalry.

3. His manhood.

(a) Attempt of the Norman lords to break his power. Battle of *Val es Dunes*. (What do we learn of William's character from his conduct in this battle?)

(b) Attempt of French dukes to break William's power. Battle of Mortimer and of Varaville. (What do they show in William's character?)

4. William's claim to England.

(a) Harold's visit to Normandy, and his forced oath to the duke. (See Mlle. Ashléman's French outlines in the March and April numbers of the COURSE OF STUDY.)

(b) Did William have any real right to the English throne?

5. The conquest.

(a) Condition of England; lack of unity among the Saxon earls: Harold's battle against the Danes at Stamford bridge; Harold's march to Hastings, and the failure of the Northumbrians to help him.

(b) William's embarkation with the Norman soldiers; the landing in England; the battle of Hastings; death of Harold; acceptance of William as king at London. The whole matter so far will be summed up in two points: William's conspicuous ability as a general, and the lack of unity among the English.

6. Effect of conquest.

(a) How were English customs, laws, and people changed by the Normans? English folkland became crown lands under William. (If the children know nothing of the Saxon communal system, teach it here.)

(b) Growth of the idea of king. (Show how the power of the king had been increasing since Hengist's election.) What William did to make the king supreme. Domesday book; the gathering of the nation; William compels every one to take oath of subservience to him.

(c) Growth of the Norman barons.

(d) English popular assemblies went on as before, only they became Normanized.

(e) English law. The law of the English ordeal now supplemented by the Norman wager of battle. (Read the fight between Brian de Bois Guilbert and Ivanhoe.) Law of murder and Englishry; separation of clerical from secular cases in the English law process. (Show here how our law goes back to these times for its foundation in custom.)

(f) Effect on England from European point of view, i. e., England under William became a European power. England's relation to France. King of England legally a Norman duke under vassalage of French king.

7. Feudalism. Discuss the conditions of society in France, Germany, and England at this time, to bring out the feudal system. The feudal oath: Green's *History of England*, p. 129, Vol. I. Show how this system is rooted in the ideas of individual liberty and of tribal autonomy in the German tribes. Growth of feudalism among the English previous to William's arrival (for protection against the Danes); among the English social strata—eorl, ceorl, thrall.

8. Chivalry. The code of chivalry can be interestingly taught by following the life of a young English baron from boyhood to knighthood.

References: Green, *History of the English People;* Gautin, *Chivalry;* Emerton, *Introduction to the Middle Ages. Sources of English History;* Higginson and Channing, *English History for Americans.*

Art Work: The painting and drawing which may be done in connection with this work is limited only by the children's time and desire. Illustrations of scenes they have read about, drawings of old Norman castles, and of knights and the various members of the mediæval society, should not be done by the children in haphazard fashion. Thus, historical truth in the matter of costume should be insisted on.

Geography: The work planned for March and April will be carried on through May. That is to say, that the geography will be made to correlate as closely as possible with the history. Also, for this month, a little time will be taken each day for the discussion of current events, especially those which have some reference to the geography of special localities, i.e., the Manchurian question in China.

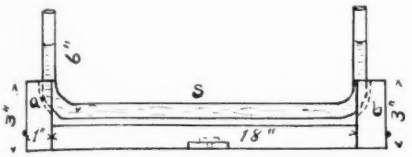
Mathematics: The school will make, under the direction of Mr. Myers, a topographic map of at least a part of Lincoln Park. The Seventh and Eighth grades will have for their share the running of certain lines, the fixing of angles, and the determination of level lines. This work will be done in the park by class groups of four, and from the notes taken the actual mathematical work will be done in the class. Each pupil will, from the collected data, make his own map of the south end of Lincoln Park. As part of this work the class will make four of the following instruments for determining level lines. This exercise is by Mr. George W. Myers.

CLASS EXERCISES.

Bend up six inches of both ends of a glass tube of ¼-inch bore and of 30 inches length as shown in the cut. This can be done by heating the straight rod gradually in a Bunsen flame until the glass becomes tough, and then bending it with the fingers.

While the glass of one bend is still plastic lay the bent tube down on a plane surface, and with a smooth plane board press down upon the

bent tube until the two ends lie in a plane with the middle part of the tube.



Of three pieces of surfaced inch stuff 4 inches wide make a holder or cradle for the bent tube as indicated in the figure, allowing the ends of the tube, which are to be held upright, to extend some four inches above the top of the end-pieces *a* and *b*. Then, holding the middle segment *S* of the tube horizontal, fill it with water until the water stands an inch or so above the top of the end-pieces.

By sighting over the surfaces of the two vertical columns of water, a level line is thus indicated.

The apparatus may then be given a practical support in either of two ways:

First. By providing the middle of the under surface of the cradle with a metal plate, perforated with a threaded hole and screwed to the board. This hole will receive the screw which runs through the head of the light tripod, explained under Experiment No. 4, p. 667, April COURSE OF STUDY, after the drawing-board there represented has been removed.

Second. The cradle may be set on top of the drawing, with the apparatus fitted as explained in the April COURSE OF STUDY.

The method of running level lines, or determining the differences of level of points in the field, is obvious, and the purpose of the instrument is the same as that of a civil engineer's leveling instrument. The apparatus will be used in making the topographic survey of Lincoln Park.

Oral Reading: So far as possible, the children will read things in the spirit of the time they are studying. They have have had translations of the Saxon chronicles, and of the Latin authors who wrote about Britain and the Teutons. This paraphrase of two Anglo-Saxon poems — *The Battle of Maldon* and *The Battle of Brunanburh* — was done with the idea of giving the children some notion of Anglo-Saxon poetry. Of course they could not read a line in the original.

The Battle

Meantime the herald,
He of the sea-kings,
Stood in his steading.
Loudly now called he;
Then coming forward
Woe-words he spake:
"For you is this sending,
Bold from the seamen.
I am to say to you —
Send of your gold-hoard
Safety to buy of us.
Surely 'tis better
To buy off this warfare
Than with us to battle
In the hard hand-play.
If so you yield to us,
We will swear peace-words
Over your gold-hoard;
And you, O you chief,
Will thus save your hearth-band
From doom of the battle,
And we the grim sailors
Will promise our peace-word;
And so fare we forth again
In our strong sea-ships,
Foamy-necked travelers,
Laden with treasure,
Over the whale-road
Far to our homing."
Answered the earldorman,
Brythnoth the warrior,
Holding his shield high,
Waving his spear-haft,
Thus made he answer:
"Hear! thou sea-rover
What saith this people;
Tribute they grant you,
You shall have treasure,
Though not of their gold-hoard,
Yet of their weapons —
Points of their spears,
Edges of swords,
Their ancient war-armor;
But these shall avail you
Naught in your fighting.
Word-bringer of rovers,
Go back to thy people,
Give them our wording,
The tale of our anger:
Here stands undaunted
An earl and his war-host,

Ever defending
Our Aethelred's land,
His folk, and his kingdom;
Die shall the heathen,
Killed in our battle.
Yet to me seems it dastard
That after your coming
Far from your home-land
You should fare backward
Rich with our plunder,
Poor of our battle-blows.
Are ye so fearsome?
Between us the sword
And spear should decide
In the fierce war-play."
Then bade he the war-band
Raise high the shield-wall,
War-thin and dinted,
And draw up together
In rank by the stream-side.
When they were ready,
War-hard East Saxons,
Saw they their foemen,
Hardy sea-rovers,
Over the river.
Flood-tide after ebbing
Came up the river,
Parting the war-bands
From the hard hand-play,
So that no hero
His foeman could slay
Save by an arrow;
And from the island-shore,
Girt with sea-farers,
Gleaming with weapons,
Came there sword-clashing;
Eager and ready
Were the bold seamen.
Then Brythnoth speaking,
Called of his warriors
A battle-worn hero,
A man prompt and hardy,
To guard at the fording
(Ceola's son, Wulfstan,
The name of the hero,
And with him twain others,
Aelfere and Manus;
These then held ready
To ward at the fording
So long as their strength held.
Saw the sea-rovers
How the fierce heroes,
Three mighty bridge-wards,
Ready with weapons
To slay the first comers,
Stood at the passage.
Boldly dissembling
Begged they their fording
To lead up their war-bands
Over the water.
Then Brythnoth, strong-hearted,
Longing for battle,
Hard in his pride-faith,
Thought to yield footing,
Granting their wishes
To the grim ocean-wolves.
So Brythelm's son
(All the lords listening)
Called to the strangers
Across the cold water:
"Hark ye, sea-rovers,
Free space is allowed you;
Come hitherward quickly,
Haste to our battle;
And God alone knoweth
Which of us conquers."
Clashed the grim seamen
Shield against weapon,
But they hung backward
Askance from the fording.
So Brythnoth, the stark one,
Silent and haughty,
Motioned his hearth-band
Back from the river,
Yielding free footing
To whoso would land there.
Yet waited those ocean-wolves
Still for a moment,
Facing their foemen
Over the river.
Then with harsh shouting
Hosts of the Vikings
Waded the waters;
Waving their shield-wall,
Climbed they the ford-bank,
Wolves to the slaughter,
Safe with their shield-wall,
Hard bucklers of linden.
And over against them
Brythnoth stood ready,
Silent and sullen,
Brythnoth and his heroes.
Cried to his war-band
Brythnoth the head-man:
"Raise ye the shield-fence,
Hold yourselves ready
'Gainst these our foemen."
* * * * * *
Then came the conflict,
Glory of chieftains,

Doom-hour upon them
To many a hero.
* * * * * *
Over the war-play
Hung the swart raven,
And that horny-nibb'd bird,
The greedy war-hawk,
With ashen feathers,
Waiting for quiet.
Skulked through the marshes
That shadowy beast,
The wolf of the wold.
* * * * * *
Never aforetime
Harder fought battle
Was in this island
Since hitherward roaming,
Fallow seas over,
Engle and Saxon
Came seeking Britain.

Nature Study for May and June, Sixth, Seventh, and Eighth Grades: (KATHARINE M. STILWELL.)

PLANT AND ANIMAL LIFE.

The study of germination has been carried on through the month of April by the use of window-gardens, the hotbed experiments at home, and observations in Lincoln Park.

Weekly records of the landscape, the appearance of the tree selected for special study, the growth of the plants, and the development of the buds have been kept in painting and writing.

Weather conditions were recorded and the records used in a study of the relation between the conditions and the rate of plant growth. The records of heat and moisture for the month were compared with the average for the last twenty years. This average was computed by the pupils from the data in the U. S. Meteorological Summary.

Much interest is manifested in the animal life of this region. Some of the pupils have formed a club which meets in the early morning for the observation of birds. The birds seen are further studied from the specimens in the museum and from the books in the library—each pupil keeping a record, by paintings, of the birds he has seen.

In May, work in all these directions will be continued, but by a study of more specific problems.

Many of the pupils have been able not only to plan the experiments which answer the questions suggested, but also to discover new problems. But here, as elsewhere, are some pupils who need definite directions. To help them, the outline and directions which follow have been prepared.

It is not expected that every pupil will do all the work indicated, but each pupil will select some topic for investigation.

OUTLINE.

I. A study of the plant life of typical areas of this region—park, garden, meadow, ravine, and swamp. Illustrations in color. Collection of specimens.

II. A study of the plants in these areas in relation to moisture, soil, light, heat, and air.

1. Relation of moisture to plant growth.

(a) Source of moisture supply; monthly rainfall and its distribution throughout the year.

(b) Adaptation of plant to moisture conditions; observation of root and leaf structure.

(c) Transpiration; quantity of water used by different plants. (Experiment.)

(d) Water accessible to plant; soil moisture. (Experiment.)

2. Relation of different soils to plant growth.

(a) Soil texture; relation to moisture content. (Experiment.)

(b) Soil constituents; physical analysis of soil. (Experiment.)

3. Relation of light to plant growth.

(a) Part directly influenced by light; study of foliage leaves.

(b) Methods of reaching light.

(c) Leaf arrangement and form.

(d) Formation of starch in foliage leaves.

4. Relation of heat to plant growth.

(a) Temperature of the air.

(b) Temperature of the soil. Note especially during the flowering period. Study this question in relation to the water supply.

5. Relation of air to plant growth.

(a) Plant respiration.

(b) Effect of moisture; dry air.

(c) Direction of the prevailing wind; effect upon vegetation.

III. Mutual relation of plants and animals. Mounting and preserving of specimens.

1. Why the animal seeks the plant; food; home. (Illustrations.)

2. Plant protection.

References: Kerner and Oliver, *Natural History of Plants;* Arthur and MacDougal, *Living Plants;* Gaye, *The Great World's Farm;* Coulter, *Plant Relations, Plant Structure;* Barnes, *Plant Life;* Cowles, *Plant Societies of Chicago and its Environs;* Jordan, *Animal Life;* Neltje Blanchan, *Bird Neighbors;* Chapman, *Bird Lore* (magazine); Comstock, *Insect Life;* Weed, *Life Histories of American Insects;* Mabel Osgood Wright, *Birdcraft;* Chapman, *Bird Life.*

NATURE STUDY—DIRECTIONS FOR PUPILS OF THE GRAMMAR GRADES.

I. Relation of plant life to moisture, soil, light, heat, and air.

1. Paint a typical landscape of each of the following areas: swamp, ravine, prairie, sand ridge, and park.

2. Rainfall. Calculate the amount of water that fell on each square foot of ground in April. How does this compare with the average for twenty-five years for that month? How does the rainfall compare with the amount of moisture evaporated from the same surface?

3. Plant form and structure. Make paintings of plants found in each of the places mentioned in 1.

(a) What is the meaning of the variations in form, size, and structure of leaves? Note various arrangements of leaves on the stem; lengths of stems.

(b) Wash soil away from roots of plants. Compare length of roots of various plants. Compute root area of the plant. How does this compare with the amount of moisture in the soil?

4. Transpiration. Experiment 1: Invert a glass vessel (bell-jar) over a small active plant. Note results.

Experiment 2: Insert the petiole of a vigorous leaf through a cardboard. Place the cardboard over a tumbler of water in such a position that the leaf blade projects upward. Invert a second glass over the blade of the leaf. Note results.

Experiment 3: Transplant a seedling of some plant to a wide-mouthed bottle. Put cork around the stem of the plant and seal the bottle air-tight with paraffine. Measure leaf surface, in square inches, of the plant. Weigh the plant and bottle.

(a) Place in sunshine for a day; reweigh. Try the same experiment for a cloudy day and at night. Compare results.

(b) Remove some of the leaves and try the same experiment. Inference.

5. Water in the soil. Experiment: Secure 100 grains of soil from each of the places above mentioned. Place in trays, dry thoroughly, and reweigh.

(a) What per cent of each soil is water?

(b) Show the actual amount of water in a cubic foot of soil.

6. Water available for plant. Experiment: Let a vigorous plant wither for want of water. Weigh the soil, dry thoroughly, and reweigh. Why did the plant wither?

7. Evaporation. Experiment: Fill a pan with soil; weigh. Sink the pan in the ground, with its surface level with the ground.

(a) Test during a sunshiny day and reweigh; a cloudy day, night.

(b) Cover the same kind of soil with sod, and try the same experiments. How does the sod affect the rate of evaporation? Inference.

(c) Find the rate for different soils.

8. Starch formation.

Experiment 21, page 306, Barnes' *Plant Life.* (Teacher will boil the leaves in alcohol to dissolve the chlorophyll.) Test these leaves with iodine.

II. Relation of plant and animal life.

1. Make observations and collections of animal life found in each area.

2. Birds. Make a study of:

(a) Home and nest.

(b) Food.

(c) Relation of form of bill and claw to means of getting food.

(d) Relation of color of the bird to its surroundings.

Paint the bird in its home.

3. Insect and swamp life. Make a study of:

(a) Home.

(b) Food.

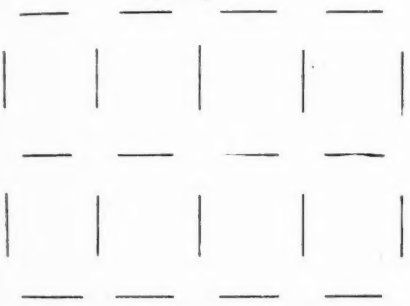
(c) Mouth parts, feet, wings.

From books find more of the life and habits of the animal. Paint the specimen in its home.

French: (MLLE. ASHLÉMAN.) The dramatization of *Guillaume le Conquérant* (see April COURSE OF STUDY) will be continued in May, as well as the memorizing and dramatizing of *Le Pinson et la Pie* and *Le Singe Qui Montre la Lanterne Magique*. The story of this last fable will be written in English by the pupils, and illustrations made both in modeling and painting. These stories and illustrations will be sent as a present from the pupils of these grades to a school of poor children in Jackson, Kentucky, to give them an insight into the character of work done in this school.

The following puzzle will be given to the pupils for solution:

Petits Jeux



Réduire cette figure à 4 carrés égaux, en supprimant: à (six, b) sept allumettes.

Le Pinson et la Pie

"Apprends-moi donc une chanson,"
Demandait la bavarde Pie
A l'agréable et gai Pinson,
Qui chantait au printemps sur l'épine fleuri.
"Allez, vous vous moquez, ma mie.
A gens de votre espèce, ah! je gagerais bien
Que jamais on n'apprendra rien."
"Et quoi! la raison, je te prie?"
"Mais c'est que, pour s'instruire et savoir bien chanter,
Il faudrait savoir écouter,
Et jamais babillard n'écouta de sa vie."

Le Singe Qui Montre la Lanterne Magique

Un homme qui montrait la lanterne magique
Avait un Singe dont les tours
Attiraient chez lui grand concours.
Jacqueau, c'était son nom, sur la corde élastique
Dansait et voltigeait au mieux,
Puis faisait le saut périlleux.
Un jour qu 'au cabaret son maître était resté.
(C'était, je pense, un jour de fête),
Notre Singe en liberté
Veut faire un coup de sa tête.
Il s'en va rassembler les divers animaux
Qu'il peut rencontrer dans la ville:
Chiens, chats, poulets, dindons, pourceaux,
Arrivent bientôt à la file.
"Entrez, entrez, messieurs," criait notre Jacqueau;
"C'est ici, c'est ici, qu'un spectacle nouveau
Vous charmera gratis. Oui, messieurs, à la porte
On ne prend point d'argent, je fais tout pour l'honneur."
A ces mots, chaque spectateur
Va se placer et l'on apporte
La lanterne magique; on ferme les volets;
Et, par un discours fait exprès,
Jacqueau prépare l'auditoire.
Ce morceau vraiment oratoire,
Fit bâiller; mais on applaudit.
Content de son succès, notre Singe saisit
Un verre peint qu'il met dans sa lanterne.
Il sait comment on le gouverne,
Et crie en le poussant: "Est-il rien de pareil?
Messieurs, vous voyez le soleil,
Ses rayons et toute sa gloire.
Voici présentement la lune; et puis l'histoire
D'Adam, et d'Ève et des animaux—
Voyez, messieurs, comme ils sont beaux!
Voyez la naissance du monde;
Voyez . . " Les spectateurs, dans une nuit profonde,
Ecarquillaient leurs yeux et ne pouvaient rien voir:
L'appartement, le mur, tout était noir.
"Ma foi," disait un Chat, "de toutes les merveilles
Dont il étourait nos oreilles,
Le fait est que je ne vois rien."
"Ni moi non plus," disait un Chien.
"Moi," disait un Dindon, "je vois bien quelque chose,
Mais je ne sais pour quelle cause
Je ne distingue pas très bien."
Pendant tout ces discours, le Cicéron moderne
Parlait éloquemment et ne se lassait point.
Il n'avait oublié qu'un point:
C'était d'éclairer sa lanterne.—*Florian.*

The High School

Ninth and Tenth Grades

Latin, Eighth and Ninth Grades: (KATHARINE M. STILWELL.) The class will continue the work in *Caesar*, as begun in April, by reading *The Helvetian War*. They are already more or less familiar, through their work in Roman history, with the efforts of Rome to replace the customs of the barbarian tribes with her law and order; and having studied the events which led up to this great struggle, they are in a measure prepared to understand its meaning.

The war will be treated as a piece of universal history, taught by means of maps, pictures, and such other aids as would be employed were the account written in the English language. Latin constructions will be noted and dwelt upon when such reference tends to interpret the thought. Attention will be paid to the Roman use of the subjunctive mode for expressing certain ideas. The class will read the text and discuss the points indicated in the following outline:

I. Cause of the Helvetian migration.

1. Geography of western Gaul—broad, rich plains, sloping from the Cevennes to the ocean, and watered by navigable rivers.

2. Geography of Helvetia—a narrow plateau walled in on the east and south by the Alps, on the west and north by the Jura, and separated from the Roman province by the Rhone. This little strip, at most 200 miles long by 120 miles broad, was the home of 400,000 Helvetians.

The class will be led to see these geographical conditions as the fundamental cause of the migration. They will picture the geography by means of a map which the teacher will sketch before them upon the blackboard. In developing it she will use their knowledge, which she will supplement by vivid descriptions and by pictures.

Members of the class will be called upon to impersonate the Helvetian leaders, and to present arguments for and against removal.

II. The routes.

From the possible routes the class will determine the one to be taken. This will involve a detailed description, including a statement of the advantages and disadvantages of each. (Maps, pictures, and descriptions from literature will be used by the teacher.) The routes will be indicated on the map already upon the blackboard.

III. Caesar.

The decision to take the route to the south through the Roman province brings Caesar with his army over the Alps to the foot of Lake Geneva. The class will precede the army building the Roman road over the Alpine passes to the Rhone, and will watch the construction of the camp on its banks. Caesar's refusal to permit to the Helvetians a passage through the province will lead the class to a discussion of the following questions: Were the Helvetians justified in moving? What would have been the probable effect upon Rome if the Helvetians had carried out their plans? What effect upon our civilization? Was Caesar right in interfering?

IV. Building of the fortification.

The class will follow the construction of the wall from Lake Geneva to the Rhone, expressing the finished work in color.

V. Change of route.

As the class read of the change of route,

and Caesar's addition to the army, they will study the organization of the Roman army. In this connection they will read *The Roman Art of War in Caesar's Time* in the introduction to Kelsey's *Caesar;* also Mr. Gould's references on page 177 of the October COURSE OF STUDY.

The expression of the class in this month's work will be: the drawing of maps to show topography of the country and routes of travel; paintings of the wall built by Caesar on the south bank of the Rhone, showing Roman guards in their military equipment; drawings of a Roman camp and winter quarters of the army; clay-modeling of shields and standard, and written papers presenting the arguments of the leaders.

Latin (Caesar), Ninth and Tenth Grades: (KATHARINE M. STILWELL.) This class did not finish reading *The Helvetian War* till the middle of April. They have just started the account of the war with Ariovistus and the Germans; so the work for May will be carried on as planned by Mr. Gould in the April COURSE OF STUDY.

German, Ninth and Tenth Grades: (DR. SIEGFRIED BENIGNUS.) For exercises in grammar—especially in irregular verbs—in oral and written expression, the conquest of Greece by the Romans will be studied.

Reading: *Picturebook without Pictures;* memorizing: *Frühlingswanderung*, by Wilhelm Müller.

Fruhlingswanderung

Der Mai ist auf dem Wege,
Der Mai ist vor der Thür.
Im Garten, auf den Wiesen,
Ihr Blümlein, kommt herfür.

Da hab' ich den Stab genommen,
Da hab' ich das Bündel geschnürt,
Zieh weiter, immer weiter,
Wohin die Strasse mich führt.

Und über mir ziehen die Vögel,
Sie ziehen in lustigen Reihn,
Sie zwitschern und trillern und flöten,
Als ging's in den Himmel hinein.

Der Wandrer geht alleine,
Geht schweigend seinen Gang.
Das Bündel will ihn drücken,
Der Weg wird ihm zu lang.

Ja, wenn wir allzusammen,
So zögen ins Land hinein,
Und wenn auch das nicht wäre,
Könnt eine nur mit mir sein!

Wilhelm Müller, 1794-1827.

French, Ninth and Tenth Grades: (LORLEY ADA ASHLÉMAN.) These grades have been dramatizing *La Dernière Classe*, as stated in the April COURSE OF STUDY. Below is given Act I, showing the manner in which this work has been done.

La Dernière Classe

Acte I

Scène Première

Le temps: Un matin de printemps. La lisière d'un bois au fond du théâtre. Une rue sur le devant.

(Un petit garçon entre marchant très lentement avec des livres sous le bras. Il regarde autour de lui avec envie.)

Frantz. Qu'il fait chaud. Le soleil brille bien fort, et les oiseaux, comme ils chantent! En vérité il fait trop beau pour aller à l'école. D'ailleurs si j'y vais, je serai grondé parceque je ne sais pas ma leçon au sujet des participes! Que ces choses sont stupides! Il faut trop travailler pour apprendre la langue française. (Il s'arrête et semble écouter.) Ah! Voilà les Prussiens qui font l'exercice dans le pré Rippert. Je crois que j'irai les voir. Non! Il faut aller—

Oh! il fait trop beau. Je n'irai pas à l'école. (Il entend l'horloge du village qui sonne le quart.) Déjà neuf heures et un quart. Je suis trop tard pour y aller. Mais que dira M. Hamel demain, et que dirai-je moi? Ce sera bien désagreable. Après tout il vaut mieux aller à l'école! (Il se met à courir dans la direction de l'école.)

Scène Deuxième

(Devant la mairie beaucoup de monde est arrêté près du grillage aux affiches.)

Vieille Femme. Maintenant que font ces Prussiens! Ha, ha! Vous voulez donc que nos enfants n'apprennent pas leur belle langue. (Tout le monde secoue la tête en désapprobation.) Misérables que vous êtes! Mais, vous allez voir! Mes petites (prenant un enfant dans ses bras et l'embrassant) apprendront le français.

(Deux jeunes filles passent.)

Une Fille. Quoi vous dites, qu'il faut maintenant toujours parler allemand. Je ne peux pas d'ailleurs, je ne le veux pas, non, jamais, jamais de ma vie!

(Un homme entre avec sa femme, qui tient un bébé dans ses bras.)

L'Homme. Ma pauvre femme, ce sont là les mauvaises nouvelles! Notre pauvre enfant! Mais, non, nous ne resterons plus dans ce pays! Nous irons à Paris.

La Femme. Mais ce serait si écœurant de quitter notre vieille maison.

(Le Forgeron Wachter et son apprenti entrent en scène.)

Apprenti. Monsieur Wachter, que dit cette affiche, s'il vous plaît ?

Le Forgeron. Il faut, qu'après le quinze mai, toutes les personnes dans l'Alsace et dans la Lorraine parlent allemand! Tous ceux qui n'observeront pas cette commande dans les écoles seront punis. Signé, "Bismarck."

Apprenti. Qui est Bismarck?

Le Forgeron. Le chancelier de fer!

(Frantz entre. Il s'arrête en voyant l'affiche.)

Frantz. Qu'est-ce qu'il y a encore? (Il court vite vers l'école.)

Le Forgeron (*crie après lui*). Ne te dépêche pas tant, petit. Tu y arriveras toujours assez tôt à ton école. Ha! Ha! (Le petit garçon regarde derrière lui et court toujours vers l'école.)

(L'ancien facteur, accompagné de sa fille, lit l'affiche.)

Le Facteur. Depuis deux ans, ma fille, toutes les mauvaises nouvelles sont venues de là.

La Fille du Facteur. Eh, bien! Toi et moi, nous parlerons toujours français a la maison. Nous pouvons au moins garder notre langue.

Scène Troisième

(Les élèves sont déjà rangés à leur place, et M. Hamel passe et repasse avec la règle en fer sous le bras. Frantz ouvre la porte au milieu de ce grand calme. M. Hamel le regarde sans colère et lui dit très doucement.)

M. Hamel. Va vite à ta place, mon petit Frantz; nous allions commencer sans toi.

(Le maître porte sa belle redingote verte, son jabot plissé fin, et sa calotte de soie noire brodée. Toute la classe a quelque chose d'extraordinaire et de solennel. Sur les bancs qui restent vides d'habitude sont assis le vieux Hauser avec son tricorne, l'ancien maire, l'ancien facteur, et puis d'autres personnes encore. Tout le monde paraît triste, et Hauser a un vieil abécédaire mangé aux bords qu'il tient grand ouvert sur ses genoux avec ses grosses lunettes posées en travers des pages. M. Hamel monte dans sa chaire, et de la même voix douce et grave il dit.)

M. Hamel. Mes enfants, c'est la dernière fois que je vous fais la classe. L'ordre est venu de Berlin de ne plus enseigner que l'allemand dans les écoles de l'Alsace et de Lorraine. Le nouveau maître arrive demain. Aujourd'hui c'est votre dernière leçon de français. Je vous prie d'être bien attentifs.

(Ces quelques paroles bouleversent le petit Frantz, et il s'écrie.)

Frantz. Ah les misérables, voilà ce qu'ils avaient affiché à la mairie. Ma

dernière leçon de français. (Il se cache la figure dans les mains.)

M. Hamel. Oui, mon petit Frantz. (Il se tourne vers Jeanne.) Eh bien, Jeanne, allez au tableau noir et dites nous la règle du participe passé conjugué avec *avoir*. Ecrivez des exemples qui nous feront voir que vous comprenez bien la règle."

Jeanne (*écrit sur le tableau noir*). "J'ai fini ma leçon." Avec l'auxiliaire *avoir*, le participe passé est invariable quand l'objet direct suit le verbe.

"Je l'ai finie." Quand l'objet direct précède le verbe, le participe passé s'accorde avec l'objet direct.

M. Hamel. C'est très bien, ma petite. Louise, continuez.

Louise. Avec l'auxiliaire *être* le participe passé s'accorde avec le sujet. "La dame est venue."

M. Hamel. Bravo, Louise. Maintenant, Frantz, dites-moi encore une fois cette règle. (Frantz n'entend pas.) Frantz! Frantz! voyons, mon petit, les règles du participe.

Frantz (*à lui-même*). Mais je ne les sais pas. (Il se lève; et il essaye de réciter, mais il s'embrouille tout de suite.) L'auxiliaire *avoir*—avec, l'auxiliaire *avoir*, le par-ti-cipe—(Il reste debout près de son banc sans oser lever la tête.)

M. Hamel. Je ne te gronderai pas, mon petit Frantz; tu dois être assez puni. Voilà ce que c'est, tous les jours on se dit: "Bah! J'ai bien le temps. J'apprendrai demain." Et puis tu vois ce qui arrive. Ah ça a été le grand malheur de notre Alsace; toujours remettre son instruction à demain. Maintenant ces gens là sont en droit de nous dire: "Comment vous pretendiez être français, et vous ne savez ni parler, ni écrire votre langue?" Dans tout cela, mon pauvre Frantz, ce n'est pas encore toi le plus coupable. Nous avons tous notre part de reproches à nous faire. (On entend les pigeons qui roucoulent. Une petite fille assise près de la fenêtre fait la question.)

La Petite Fille. Est-ce qu'on va les obliger à chanter en allemand eux aussi?

M. Hamel (*sourit tristement et caresse sa chevelure blonde*). La langue Française, mes enfants, c'est la plus belle langue du monde, la plus claire, la plus solide. Il faut la garder entre vous et ne jamais l'oublier, parceque, quand un peuple tombe esclave, tant qu'il tient bien sa langue, c'est comme s'il tenait la clef de sa prison.

Eh bien! Passons à l'écriture. Prenez vos cahiers et vos plumes. (M. Hamel écrit sur le tableau noir en grandes lettres: "ALSACE—LORRAINE." Les élèves se mettent à écrire.)

M. Hamel. Maintenant, vous, mes petits, nous allons chanter nos lettres.

Les Élèvès. B-a, ba; b-e be; b-i bi; ba, be, bi; b-o, bo; ba, be, bi, bo; b-u, bu; ba, be, bi, bo, bu.

(Le vieux Hauser met ses lunettes, et il épelle les lettres avec les élèves. Sa voix tremble d'émotion. Tout à coup l'horloge de l'église sonne midi, puis l'angelus. Au même moment, les trompettes des Prussiens éclatent sous les fenêtres. M. Hamel, se lève, tout pâle dans sa chaire, et dit.)

M. Hamel. Mes amis, mes amis—je—je—(Il se tourne vers le tableau noir, prend un morceau de craie, et en appuyant de toutes ses forces il écrit aussi gros qu'il peut: "VIVE LA FRANCE!" Puis il reste là, la tête appuyée au mur et sans parler; avec sa main il fait signe.) Allez vous en. *C'est fini.*

History, Ninth and Tenth Grades: (GUDRUN THORNE-THOMSEN.) The class has not been able to accomplish so much work as has been outlined for the previous months, so that for the month of May nothing new has been planned.

Physiography, Ninth Grade: (WALLACE W. ATWOOD.) Subject: THE OCEAN. Excursions to the Lake Michigan shores and

to the museums will be made when possible. Laboratory work in the study of sea-water and sea-life will also be introduced.

I. Form and extent. (Study relief globes.)

1. As compared with land.

2. In northern and southern hemispheres.

II. Exploration of the ocean. Examination of instruments in museums.

1. Sounding instruments and water-bottle.

2. Deep sea thermometers.

3. Dredges.

III. Depths. Draw cross-section to different scales.

1. Greatest.

2. Average.

IV. Topography of the ocean-bottom. Study routes of cables.

1. The general features include broad plains, low ridges, shelves, mountains, and cliffs.

2. Compare with topography of the land. What are the reasons for the differences in the topography of the land and that of the sea-bottom?

V. Deposits on the ocean-bottom. Examine specimens in museums.

1. Kinds of materials:

(a) From the land.

(b) From the air.

(c) From the water.

2. Distribution of sediments. How are sediments deposited in Lake Michigan?

(a) Of gravels, sands and clays.

(b) Of meteoric material.

(c) Of oozes.

(d) Explain distribution.

VI. Composition of ocean-water. Laboratory experiments with salt solutions.

1. Kinds and amounts of salts in solution.

2. Gases of sea-water.

3. Variations in salinity. Compare saltness in Doldrum belt, Arctic regions, and portions near river mouths, with that of the water in the trade-wind belts.

4. Influence of salt on:

(a) Taste.

(b) Density.

(c) Freezing-point.

(d) Clearness.

(e) Viscosity.

VII. Density of sea-water depends on:

1. Temperature.

2. Salinity.

3. Depth.

VIII. Temperature of the sea. Study charts.

1. Surface variations. Compare with variations on land.

2. Vertical variations:

(a) In high latitudes.

(b) In low latitudes.

3. Changes in density with changes in temperature.

4. Influence of differences in temperature on circulation.

5. Temperatures of inclosed seas.

(a) Red Sea.

(b) Mediterranean Sea.

(c) Caribbean Sea.

IX. Ice of the sea. Pictures and lantern-slides will be used in this work.

1. Temperature of freezing.

2. Depth of freezing.

3. Geographic distribution.

4. Forms:

(a) Flows.

(b) Packs.

(c) The ice-foot.

(d) Bergs.

(e) Ground ice.

X. Movements of the sea. Study wave action at the shore of Lake Michigan.

1. Kinds of movement:

(a) Waves.

(b) Currents.

(c) Drift.

(d) Creep.

(e) Tides.

2. Causes of movement:

(a) Winds.

(b) Unequal density.

(c) Earthquakes.

(d) Varying attractions of sun and moon.

3. Discuss the nature and cause of each class of movement, and also the influence of each movement upon shore-lines, climate, navigation, or however shown.

XI. Life of the sea. Study pictures, lantern-slides, and specimens in museums.

1. Plant life:

(a) Distribution.

(b) Characteristics.

2. Animal life:

(a) Distribution; the littoral fauna, the surface fauna, the ocean-bottom fauna.

(b) Characteristics of each fauna.

(c) Corals and coral formations might well come in at this point, but they were discussed during the study of shore-lines.

XII. Offices of sea.

1. Supplies most of the moisture to the atmosphere.

2. Regulates in part the distribution of temperature.

3. Wears away the shores.

4. "Receives and preserves the materials out of which new land will in course of time be formed."

Art Expression: Ocean scenes in various latitudes by means of chalk and water-colors.

References: Davis, *Physical Geography;* Mill, *Realm of Nature;* Geikie, *Elementary Lessons in Physical Geography.*

Mathematics, Ninth and Tenth Grades: (GEORGE W. MYERS.)

EXPERIMENT NO. 26. Find the length of earth's radius by Wallace's method.

Let *A*, *B*, *C* of the figure be the tops of three posts of same height above water-level set up along the shore of Lake Michigan or by the side of a straight canal. Sighting from *A* over *B* the line of sight will cut the vertical post at *C* at a point *D* above *C*. The points *A*, *B*, and *C* will be on a circumference concentric with the circumference *a*, *b*, *c* of the earth's surface. Let *C D*, *B D*, and *A D* be measured. Suppose the vertical *D c* meets the circumference *A*, *B*, *C* at *d*.

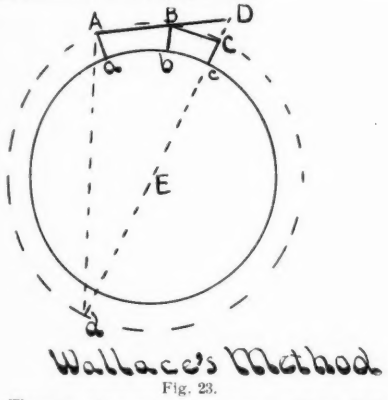


Fig. 23.

Then by elementary geometry, since $BAd = BCD$, and BDC is common to the triangles BCD and DAd, these two triangles are similar, and

$$\frac{dD}{AD} = \frac{BD}{CD}, \text{ or } dD = \frac{BD}{CD} \times AD.$$

But $dD = 2r$ (nearly); r denoting the radius of the earth. Hence

$$r = \tfrac{1}{2}\,\frac{BD}{CD} \times AD.$$

EXPERIMENT NO. 27. To find the radius of the earth.

After the latitude and longitude of points on the earth's surface are found, it is possible to determine the radius of the earth in miles. The geographical co-ordinates of the Observatory of Berlin are given in the Jahrbuch as Longitude $+0$ h. 0 m. 0 s. and Latitude $+52^\circ\ 30'.2$, and for Cape Town, South Africa, Longitude -0 h. 20.3 m. and Latitude $-33^\circ\ 56'$. Supposing the earth to be a sphere, and that the two stations, as *B* and *C*, lie on the same meridian (which is roughly true for Berlin and Cape Town, and the discrepancy can be allowed for), compute the radius of the earth, *B E*, and the

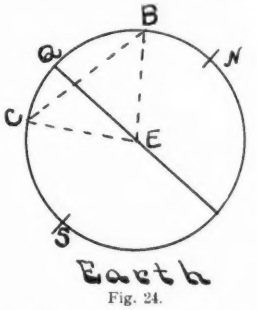


Fig. 24.

chord extending from Berlin, *B*, to Cape Town Observatory, *C*, assuming the measured length of the great circle arc, *C Q B*, to be 6,495.6 miles.

Using the 18" terrestrial globe and scale of both miles and degrees, determine the radius of the earth from measures of arcs of great circles between various places.

Hipparchus found that on March 31st at noon the sun shone vertically into a deep well at the city of Syene, 500 miles south of Alexandria, while at the latter place the gnomon showed that at noon of the same day the sun was south of the zenith by $\frac{1}{50}$ of a circle ($= 7^\circ.2$). What would these data indicate the circumference and radius of the earth to be?

[NOTE: The arc Berlin–Cape Town is not the one actually used; but it will suffice to illustrate the method as well as the one actually used, and these stations are needed in the next experiment.]

EXPERIMENT NO. 28. To find the distance to the moon.

The stations used above, Berlin and Cape Town, will exemplify the present problem. The observer at Berlin, *B*, measures the altitude,

$N_1 B M$, or zenith distance, $Z_1 B M$, of the moon, by means of the most accurate instruments available, constructed on the principles crudely represented in our hand quadrant, or Tycho's quadrant described in the April number of the COURSE OF STUDY. So also does the observer

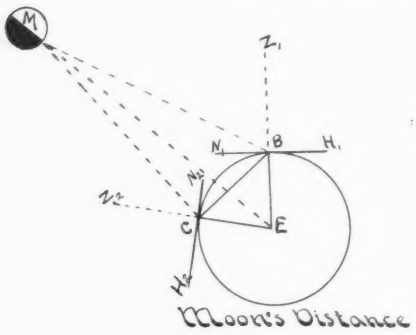


Fig. 25.

at the Cape Observatory, C, measure the zenith distance, $Z_2 C M$, or the altitude, $N_2 C M$, at the same time as does the observer at B. The time is set by previous agreement. The former experiment gave us $B E$ ($= E C$) and $B C$. The sum of the latitudes being $B E C$ ($= 96^\circ\ 26'.2$), one-half the difference between 180° and $B E C$ gives $E B C$, or $E C B$. Having measured $Z_1 B M$ and $Z_2 C M$, the former added to $E B C$ and the sum deducted from 180° will leave $M B C$ in degrees, and the latter added to $E C B$ and the sum subtracted from 180° will leave $B C M$. Knowing $B C M$, $C B M$, and $B C$, we solve the triangle by geometry, or better, by trigonometry, and obtain $B M$ and $C M$, and finally $E M$, the desired distance from the moon to the earth.

Supposing the Berlin observer finds the zenith distance, $Z_1 B M$, of the moon to be 53° 15'.1, at the instant that the Cape Town astronomer finds the zenith distance, $Z_2 C M$, to be 34° 28.' How far is the moon from the earth; i. e., how long is $E M$, if the radius of the earth is 3,963 miles?

EXPERIMENT NO. 20. To find the distance from the earth to the sun.

(a) By Aristotle's method.

Note the length of the interval of time from new moon to first quarter as indicated by the straightness of the terminator. Knowing then the length of the lunation, 29.53 days (synodic month, time from new moon to new moon again), and that the moon moves through 360° during this lunation, the angular velocity of the moon, and hence the angle $S E M$, is obtained. The angle at M being right (90°) at this instant, a small right triangle may be constructed on paper having any convenient length for $M E$ (which represents the distance to the moon found in the last experiment), and the known values for $S M E$ and $M E S$, from which the length of the hypothenuse may be read to the scale on which $M E$ represents the lunar distance. The hypothenuse so expressed will represent the distance to the sun.

Using times of new moon and first quarter from a common patent medicine almanac, and 238,000 miles for the lunar distance, find the sun's distance. Solve the problem both geometrically and trigonometrically if you can.

(b) Geometrical methods by transits of Venus will be given after the method of finding relative planetary distances is developed.

EXPERIMENT NO. 30. To find distances from sun to Mercury and Venus in terms of earth's distance from the sun.

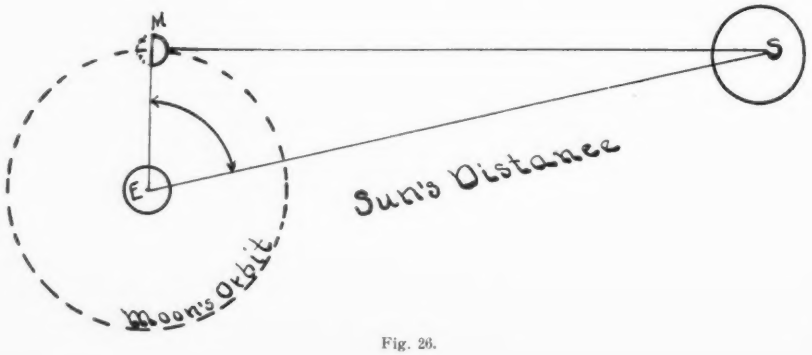


Fig. 26.

The earth, E, and Venus (the method will be seen to apply to Mercury also), V, revolve round the sun, S, in the same direction, the earth

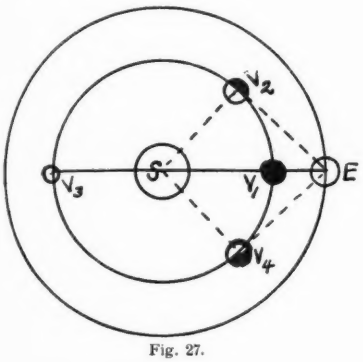


Fig. 27.

moving more slowly. When Venus comes into line with the earth and sun, as at V_1, we say the planet is in *inferior conjunction*, and when it is at V_3 it is said to be in *superior conjunction*. When the planet has swung out its farthest from the sun, as at V_2 or V_4, it is said to be at *greatest elongation, eastern or western*. Note that at this instant the angle at the planet in the triangle SV_2E, or SV_4E, is right. The angle at E may be measured directly, or it may be obtained from a common almanac. Then assuming any desired scale for SE, a right triangle may be constructed on paper, having the angles E and S ($=90°-E$) at the ends of SE. SV_2, or SV_4, will then denote the required distance. It may be measured by noting the mean time when Venus (or Mercury) crosses the meridian, and then converting the time interval into angle by multiplying the hours, minutes, and seconds by 15.

When SE is known, SV may be stated in miles. This same method holds good for either Mercury or Venus; but for no other planets.

Solve this problem both geometrically, by drawing to scale, and trigonometrically, using data of almanac.

EXPERIMENT NO. 31. To find distance from sun to Mars, or to any planet whose orbit lies beyond that of the earth. (The period of revolution of Mars is supposed to be known. Call it 687 days.)

At any instant measure the angle SE_1M at the earth between the sun and Mars. Six hundred and eighty-seven days afterward Mars will be in the same place again, but the earth will have moved around twice, lacking 43.5 ($2\times 365.25-687$) days. Measure the angle SE_1M at this time, and remembering that the earth moves over $360°\div 365\frac{1}{4}$ daily, we have only to multiply $\frac{360°}{365.25}$ by 4 to obtain the angle ESE_1. Since SE and SE_1 are supposed equal and known, a quadrilateral may be readily drawn to scale,

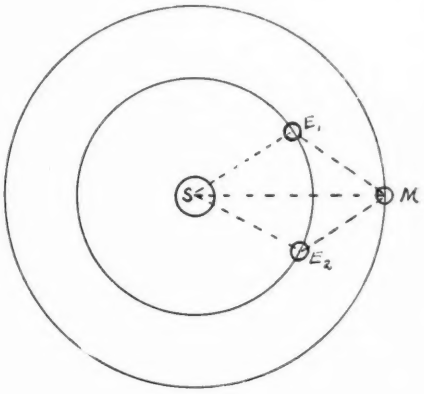


Fig. 28.

from which the straight line MS may be read. Obviously, this process is applicable to any planet beyond the earth, as soon as its period is known, and this may be obtained by direct observation, as we hope to show later. Using observed data, or data of the Ephemeris, compute the distance from Mars to sun, and do same for other planets.

[NOTE: The last two experiments show how the distances of all the planets are made to depend upon the earth's distance by the simple geometric treatment of observational data. It is with the hope of getting the earth's distance more accurately than ever before that astronomers are giving so much work just now to the little planet called Eros. Whatever error remains in the earth's distance vitiates all other distances and dimensions, not only in the solar system, but throughout the stellar universe.]

EXPERIMENT NO. 32. To find the distance from the sun to a star.

Let S represent the sun and E_1ME_2N the orbit of the earth. Let B denote the position of a star, say of Alpha Centauri. On a certain date the star B seen from E_1 would be projected on the sky among the stars $CDEF$. Six months later the earth has been carried in its annual journey to E_2 (186,000,000 miles from

E_1), and star B is then seen projected among the stars $G\,H\,J\,K$. This apparent displacement is measured by the arc xy, or by the angle

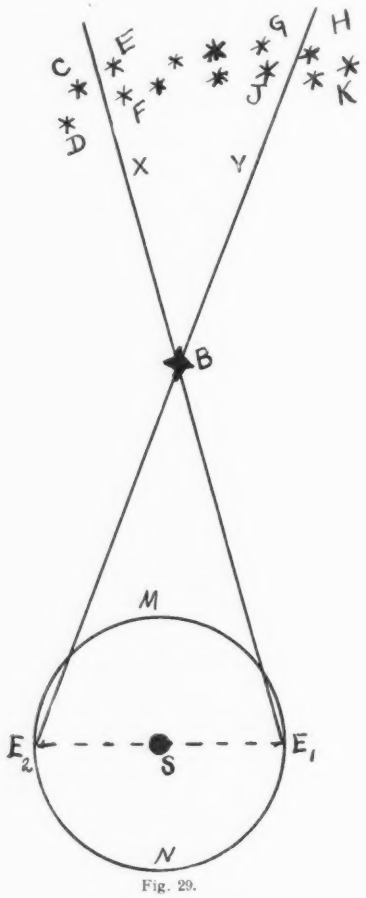


Fig. 29.

$x\,B\,y = E_1\,B\,E_2$, and it is obviously due to the observer's 186,000,000-mile shift of position in space, and not to any real change of position of the star B. If an observer were supposed to be on B and looking toward the earth, and the line $E_1\,E_2$ were visible to him, we might say the angle $E_1\,B\,E_2$ is the apparent angular diameter of the earth's orbit.

Now Experiment No. 6 taught us the law connecting the apparent angular dimensions of a line with its distance from the observer. Further experimenting would show us that if an object is viewed at a distance of 206,265 times its own dimensions it would open up an angle of one second of arc at the observer's eye. Experiment No. 6 shows that the apparent angle varies inversely as the distance. If the apparent angle is half a second, the object is 2x206,265 times its own dimensions from the observer, etc. Half of this angle $E_1\,B\,E_2$ is called the star's *parallax*.

If a star has a parallax of one second, it is then 206,265 times 93,000,000 miles from the eye; if the parallax is 0".8 the star's distance is $\frac{206{,}265 \times 93{,}000{,}000}{0''.8}$ and, in general, if the star's parallax is denoted by p'' and its distance in miles by D, we have $D = \frac{206{,}265 \times 93{,}000{,}000.}{p''}$

For most stars p'' is small, and D is so large a number that a longer unit than the mile is preferable. The ordinary unit is the *light-year*, which is the distance that light travels in one year at the rate of 186,000 miles (=300,000 kilometers) per second.

Find the distance in miles and light-years to the stars tabulated here from the parallaxes placed beside them:

	STAR.	PARALLAX.
1.	α Centauri	0".75
2.	61 Cygni	.40
3.	Procyon	.27
4.	70 Ophiuchi	.25
5.	Vega	.16
6.	Polaris	.074

Prove that $D = \frac{3.26}{p''}$ gives the distance to any star in light-years, p'' being the parallax of the star in seconds, and D the distance from it to the earth, or sun, in light-years.

Eleventh and Twelfth Grades

Twelfth Grade History: (EMILY J. RICE.) The work for April followed two lines—the westward movement of the American people in their occupation of the Northwest Territory, and the purchase of Louisiana and the history of cotton culture. We traced cotton through the primitive methods of manufacture to the factory system and the establishment of the industry in the United States. These two lines of work led to a consideration of the development of the tariff and of internal improvements.

The interest of the pupils has been greatly stimulated by the plan for the spring term's work in home economics and art. In these departments the pupils have studied the effects of the specialization of industries upon the home, and have considered house decoration with especial reference to textiles. They have also begun some work in decorative needlework. In May and June they will continue the study of house decoration and work out designs for wall decoration. They will also study some typical specimens of recent architecture.

In history we shall continue the study of the westward movement of the American people with changes in methods of transportation. We shall trace the influence of cotton upon slavery, the political issues growing out of the slavery question, and the effects of the factory system of industry upon social and political life.

Literature: Ruskin's *Crown of Wild Olive* and Emerson's *Conduct of Life*.

Domestic Science, Eleventh and Twelfth Grades: (ALICE P. NORTON.) The work for this quarter is closely related to the history. While in that subject the class are studying the industrial development of the last hundred years they are discussing, in domestic science, the influence upon the home life of the people of the most important industrial and social changes of the century.

The pupils suggested as some of these changes the greater concentration of the population in cities; the development of the factory system; the specialization of labor; the growth of sanitary science; the changed economic condition of women. Some of the effects upon the home have been to make it less permanent, to divide the interests of the family; and on the other hand, to broaden the outlook, to make beauty and comfort available for the average home, to relieve the home of unnecessary labor.

During the discussion, the importance of the home life of a people was emphasized, and the fact that many of the forces which are tending to disintegrate the home may, rightly used, help to elevate it.

What constitutes an ideal home is the topic now under consideration. The two elements in the home—the family and the house—are seen to be necessary. The ideal home demands in the house good sanitary conditions; beauty, both of surroundings and interior; convenience of location and arrangement, and a certain degree of isolation. On the family side there must be love, a certain degree of unity of purpose, harmony of thought and feeling, and a spirit of helpfulness. There must be enough money to give freedom from worry over financial matters, and a certain amount of leisure; and there must be such an apportionment of the income as will insure support for the "higher life" of the household.

The work for May will be the study of the location, architecture, and plan of the house, and of its plumbing, ventilation, and heating. Special topics are assigned to different members of the class.

Mathematics, Eleventh and Twelfth Grades: (GEORGE W. MYERS.) The work of these grades for May will consist of two lines of study; one applied and the other theoretical.

I. The applied work will be assisting in the construction of a topographic map, these grades giving their particular attention to those parts of the work in which trigonometric methods are of especial value. The triangulation of obstructed lines, the more accurate determination of magnitudes not easily furnished by geometry, will make up the greater part of the field-work.

II. The theoretical work will consist, first, of a careful restudy of the following geometrical principles and propositions, preparatory to spherical trigonometry, an introduction to which will be given in connection with the work in geography and astronomy; second, of a review of plane trigonometry through the problems to be solved in the construction of the proposed map of Lincoln Park; and third, enough spherical trigonometry to make the construction of the common almanac theoretically and practically intelligible.

The class will demonstrate these geometrical propositions and principles:

1. The dependence of the spherical triangle upon its correlative trihedral angle.

2. The sides and angles of a spherical triangle are independent of the length of the radius of the sphere.

3. Either side of a spherical triangle is less than the sum of the other two.

4. If two sides of a spherical triangle are unequal, the angles opposite are unequal, and the greater angle lies opposite the greater side, and conversely.

5. The sum of the sides of a spherical triangle is less than 360°.

6. The sum of the angles of a spherical triangle is greater than 180° and less than 540°.

7. If the first of two spherical triangles is polar to the second, then the second is also polar to the first.

8. In two polar triangles, each angle of the one is measured by the supplement of the side lying opposite in the polar.

9. Derive the formulas for the spherical right triangle, and note that the derivation merely consists in reducing solid or space angles to plane angles.

10. Study the astronomical triangle when it is right-angled.

11. Graduation of sun-dials, etc.

12. Determination of times of rising and setting of sun, moon, and stars leads to the study of the quadrantal triangle, which will be considered next.

Chemistry, Eleventh and Twelfth Grades: (ALICE P. NORTON.) The work of April began with a study of the occurrence of minerals and their formation in the earth. Laboratory experiments were given to answer questions which arose concerning solubility and crystallization. The study of the carbonates was begun, and will be completed in May. This will involve a thorough review of carbon dioxide, and of the elements with which it combines, as well as the study of the minerals in their present form. The next groups discussed will be the sulphides and sulphates.

EXPERIMENTS.

1. Place 10 grams of sodium acetate in a test-tube, add 10 c. c. of water, and warm until the acetate has entirely dissolved. Place a little cotton wool in the mouth of the tube, set it aside, and allow to cool perfectly without moving. The liquid should be clear. Now drop into the liquid a small crystal of sodic acetate and observe the effect.

2. Put about 0.5 gram $PbCl_2$ into a test-tube with 10 c. c. of water. Boil for a minute or two and then filter quickly but carefully, receiving the filtrate in a clean test-tube kept warm by being immersed in a beaker of hot water. When the liquid has filtered through, remove the test-tube from the hot water and allow to cool. Examine the product under a microscope.

3. Weigh carefully a covered porcelain crucible. Place in it about three grams of crystallized barium chloride and weigh. Heat the crucible, then allow it to cool, and again take the weight. Repeat to constant weight. Calculate the percentage of water of crystallization in the sample of barium chloride used.

4. Pass carbon dioxide into 10 c. c. of lime-water in a test-tube until the liquid becomes clear; then boil the solution.

References: Scott, *Geology;* Brush and Penfield, *Determinative Mineralogy;* Storer and Lindsay, *Manual of Chemistry;* Ruskin, *Ethics of the Dust.*

German, Twelfth Grade: (DR. SIEGFRIED BENIGNUS.) The recent war with Spain will be a subject for exercises in style. The literary study will treat of the Suabian Circle of poets: Ludwig Uhland, Gustav Schwab, Justinus Kerner, Wilhelm Hauff, Eduard Möricke.

Memorizing: Selections from Uhland's *Spring Songs.*

Fruhlingsahnung

O sanfter, süsser Hauch!
Schon weckest du wieder
Mir Frühlingslieder.
Bald blühen die Veilchen auch.

Fruhlingsglaube

Die linden Lüfte sind erwacht,
Sie säuseln und weben Tag und Nacht,
Sie schaffen an allen Enden.
O frischer Duft, o neuer Klang!
Nun, armes Herze, sei nicht bang!
Nun muss sich alles, alles wenden.

Die Welt wird schöner mit jedem Tag,
Man weiss nicht, was noch werden mag,
Das Blühen will nicht enden.
Es blüht das fernste, tiefste Thal;
Nun, armes Herz, vergiss der Qual!
Nun muss sich alles, alles wenden.

Fruhlingstrost

Was zagst du, Herz, in solchen Tagen,
Wo selbst die Dornen Rosen tragen?

Lob des Fruhlings

Saatengrün, Veilchenduft,
Lerchenwirbel, Amselschlag,
Sonnensegen, linde Luft!

Wenn ich solche Worte singe,
Braucht es dann noch grosser Dinge,
Dich zu preisen, Frühlingstag?

Ludwig Uhland, 1787-1862.

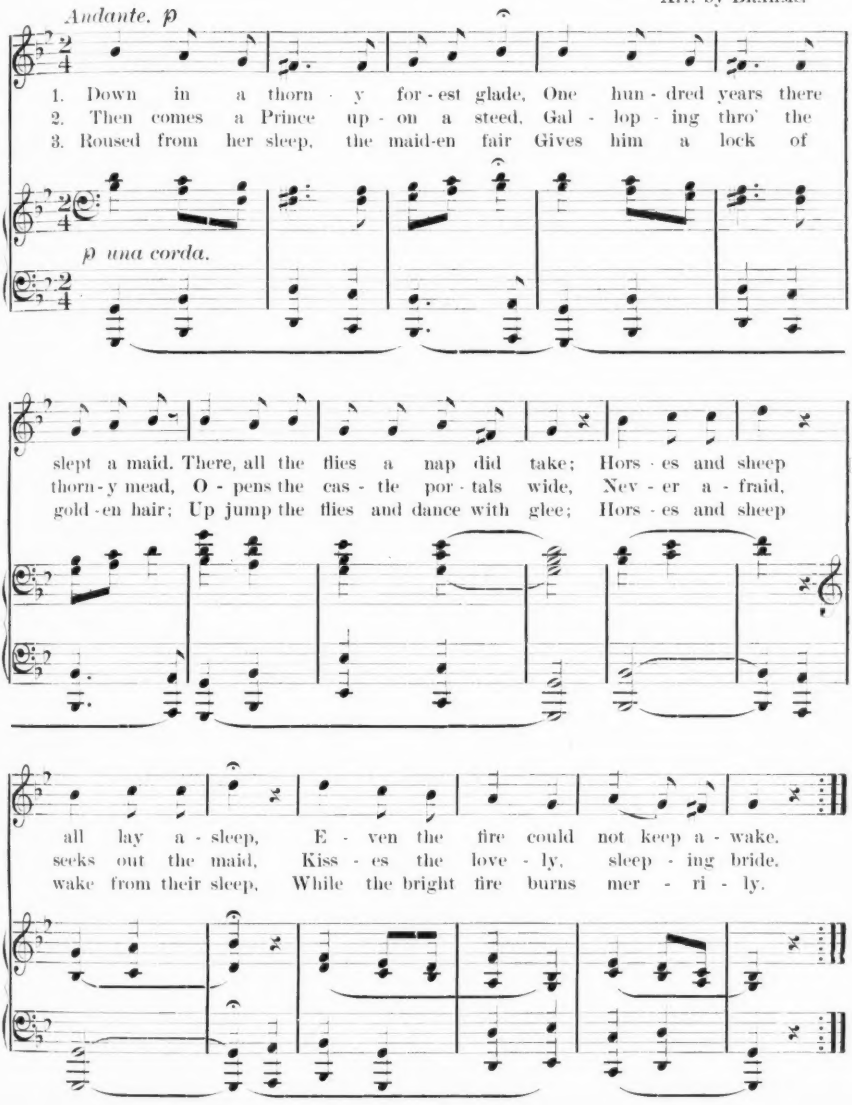
Morning Exercises

MAY	SUBJECT	LEADER
1.	May Day	Miss Mitchell.
2.	A Book Auction	Miss Warren.
3.	Current Events	Dr. Benignus.
7.	Ventilation	Mrs. Norton.
8.	Flowers	Mr. Duncan.
9.	La Dernière Classe Daudet	Mlle. Ashléman.
10.	Science Observations	Mr. Jackman.
14.	Woods	Mr. Carley.
15.	Current Events	Miss Rice.
16.	Spring Music	Miss Goodrich.
17.	Science Observations	Mr. Carman.
21.	Physical Ideals	Mr. Kroh.
22.	Evolution of Tools	Miss Champlin.
23.	Plant Life	Mr. I. B. Meyers.
24.	Nature Observations	Mrs. Atwood.
28.	Field Work	Mr. Atwood.
29.	Decoration	Miss Stilwell.
31.	Current Events	Miss Cooke.

Historical Events and Birthdays

May	1	Joseph Addison	1672
"	4	Horace Mann	1796
"	13	W. H. Prescott	1796
"	13	Founding of Jamestown	1607
"	20	Albrecht Dürer	1471
"	20	Christopher Columbus	1440
"	22	Alexander Pope	1688
"	25	Ralph Waldo Emerson	1803
"	25	Lord Lytton	1801
"	27	Dante	1265
"	27	First Telegraph Message Sent	1844
"	28	Thomas Moore	1480
"	28	Agassiz	1835
"	29	Patrick Henry	1736
"	30	H. Rubens	1577
"	30	Decoration Day	

Little Rose-bud

Arr. by BRAHMS.

Andante. p
1. Down in a thorn - y for - est glade, One hun - dred years there
2. Then comes a Prince up - on a steed, Gal - lop - ing thro' the
3. Roused from her sleep, the maid-en fair Gives him a lock of
p una corda.
slept a maid. There, all the flies a nap did take; Hors - es and sheep
thorn - y mead, O - pens the cas - tle por - tals wide, Nev - er a - fraid,
gold - en hair; Up jump the flies and dance with glee; Hors - es and sheep
all lay a - sleep, E - ven the fire could not keep a - wake.
seeks out the maid, Kiss - es the love - ly, sleep - ing bride.
wake from their sleep, While the bright fire burns mer - ri - ly.

Reading List for May

China

Description and Travel

Ballou ---- *China.* (See his *Footprints in Many Lands*, pp. 32–43.)
Beresford ---- *Break-up of China.*
Bigelow ---- *Wei-hai-wei.* (*Harper*, v. 101, pp. 645–657. 1900.)
Bishop ---- *Yangtze Valley and Beyond.*
Blake ---- *Notes and Impressions from a Tour in China.* (*19th Century*, v. 48, pp. 557–568. 1900.)
Boulger ---- *Short History of China.*
Brassey ---- *China.* (See her *Around the World in the Yacht Sunbeam*, pp. 342–377.)
Clark ---- *Empire of the Dead.* (*North American*, v. 171, pp. 375–388. 1900.)
Climate and Diseases of China ---- (*Public Opinion*, v. 29, p. 273. 1900.)
Colquhoun ---- *China in Transformation.*
Colquhoun ---- *Overland to China.*
Coryell ---- *Common Misconceptions of China.* (*Harper's Weekly*, v. 44, p. 920. 1900.)
Curzon ---- *China.* (See his *Problems of the Far East*, pp. 221–358.)
De Colange Ed. ---- *China.* (See his *Voyages and Travels*, v. 2, pp. 253–262.)
Duthine ---- *Visit to Peking in 1899.* (*Living Age*, v. 227, pp. 105–110. 1900.)
Dyer ---- *Hong-Kong and Swatow.* (*Harper's Weekly*, v. 44, p. 1193.)
Dyer ---- *Life on the China Coast.* (*Harper's Weekly*, v. 44, p. 891.)
Giles ---- *Chinese Sketches.*
Giles ---- *Historic China and Other Sketches.*
Gundry ---- *Si-ngan—the Ancient Capital of China.* (*Living Age*, v. 227, pp. 181–187. 1900.)
Headland ---- *Unscientific Chinese.* (*Scientific American*, v. 83, p. 261.)
Huc ---- *Chinese Empire.*
Huc ---- *Travels in Tartary, Thibet, and China.*
Landor ---- *Through the Forbidden City.* (*Harper's Weekly*, v. 44, pp. 1005–1009. 1900.)
Little ---- *Through the Yang-tse Gorges.*
Norman ---- *China.* (See his *Peoples and Politics of the Far East*, pp. 195–319.)
Oswald ---- *Modern Mongols.* (*Popular Science Monthly*, v. 57, pp. 618–623. 1900.)
Parsons ---- *Political and Physical Status of China.* (*Popular Science Monthly*, v. 58, pp. 69–81. 1900.)
Polyglot China ---- (*Scientific American*, v. 83, p. 131. 1900.)
Reclus ---- *China.* (See his *Asia*, v. 2, pp. 128–333.)
Scidmore ---- *China, the Long-Lived Empire.*
Singleton ---- *Caught in Quicksand.* (*Harper's Weekly*, v. 44, p. 1274. 1900.)
Thompson ---- *Straits of Malacca, Indo-China and China.*
Van Bergen ---- *Letter about China.* (*St. Nicholas*, v. 27, pp. 1085–1089. 1900.)
Washburn ---- *Sketches in China.* (*Atlantic*, v. 84, p. 69. 1899.)
Webster ---- *China and Her People.* (*Scientific American*, v. 50, pp. 20625–20626. 1900.)
Williams ---- *Middle Kingdom.*
Wilson ---- *China: Travels and Investigations in the Middle Kingdom.*

History

Angell — *Crisis in China.* (*Atlantic*, v. 86, pp. 433–437. 1900.)
Boxers — (*Review of Reviews*, v. 22, pp. 338–339 and 476–477. 1900.)
Brewster — *America and the Reconstruction of China.* (*Review of Reviews*, v. 22, pp. 314–315. 1900.)
Chinese Settlement — (*Public Opinion*, v. 29, p. 712. 1900.)
Comment on Sir Robt. Hart's *Yellow Peril* — (*Public Opinion*, v. 29, p. 587. 1900.)
Davies — *Taming of the Dragon.* (*Forum*, v. 30, pp. 353–363. 1900.)
Difference between China and Japan — (*Public Opinion*, v. 30, p. 74. 1901.)
Dyer — *China and Its Future.* (*Current Literature*, v. 29, pp. 382–383. 1900.)
Foord — *Root of the Chinese Trouble.* (*North American*, v. 171, pp. 401–410. 1900.)
Gordon — *Gordon's Campaign in China.* (*Fortnightly*, v. 74, pp. 601–617. 1900.)
Hart — *China and Reconstruction.* (*Fortnightly*, v. 75, pp. 193–206. 1901.)
Hart — *Peking Legations.* (*Living Age*, v. 228, pp. 265–287. 1901.)
Ignatius — *Pan-Mongolism.* (*Public Opinion*, v. 29, p. 491. 1900.)
Japanese Opinion of Chinese Question — (*Public Opinion*, v. 29, p. 426. 1900.)
Leroy-Beaulieu on the Chinese Problem — (*Review of Reviews*, v. 23, p. 86. 1901.)
Low — *Aim of the Powers in China.* (*Harper's Weekly*, v. 44, p. 185. 1900.)
Lowry — *Chinese Resentment.* (*Harper*, v. 101, pp. 740–747. 1900.)
Millard — *Settlement in China.* (*Scribner's Magazine*, v. 29, pp. 370–377. 1901.)
Payen — *Besieged in Pekin.* (*Century*, v. 61, pp. 453–468. 1901.)
Punitive Expeditions in China — (*Public Opinion*, v. 29, p. 712. 1900.)
Reclus — *Vivisection of China.* (*Atlantic*, v. 82, p. 329. 1898.)
Situation in China — (*Harper*, v. 97, p. 137. 1898.)
Smith — *Anti-Foreign Crusade in China.* (*Outlook*, v. 67, pp. 113–118. 1901.)
Smith — *Contribution of Foreigners to Chinese Discontent.* (*Outlook*, v. 66, pp. 923–926. 1900.)
Smith — *Remoter Sources of the Troubles in China.* (*Outlook*, v. 66, pp. 879–883. 1900.)
Smith — *Sources of the Troubles in China.* (*Outlook*, v. 66, pp. 1036–1041. 1900.)
Smith — *Why the Chinese Dislike Foreigners.* (*Outlook*, v. 67, pp. 216–221. 1901.)
Smyth, G. B., and others — *Crisis in China.*
Van Bergen — *China and Her Monroe Doctrine.* (*Harper's Weekly*, v. 44, pp. 1047–1048 1900.)
What Is to Be Done in China — (*Review of Reviews*, v. 22, pp. 606–610. 1900.)
What the Powers Ought to Do with China — (*Outlook*, v. 66, pp. 777–778. 1900.)
Williams, S. W. and F. W. — *History of China.*
Williams T. — *Can China be Saved?* (*Review of Reviews*, v. 22, pp. 294–301. 1900.)
Wu Ting Fang — *Plea for Fair Treatment.* (*Century*, v. 60, pp. 951–954. 1900.)

Manners and Customs

Bonsal — *What the Chinese Think of Us.* (*North American*, v. 171, pp. 441-452. 1900.)
Boulger — *Who's Who in China.* (*Living Age*, v. 226, pp. 753-761. 1900.)
Cerone — *Legalized Associations and Secret Societies in China.* (*Living Age*, v. 227, pp. 337-354. 1900.)
Chinaman — (*McClure*, v. 16, pp. 134-140. 1900.)
Chinese Mother Goose — (*Review of Reviews*, v. 22, pp. 722-723. 1900.)
Douglas — *Chinese Society.* (*Living Age*, v. 226, pp. 539-543. 1900.)
Fales — *Chinese Physician.* (*Scientific American Supplement*, v. 50, p. 20804. 1900.)
Hand-Labor in Chinese Mines — (*Scientific American*, v. 83, p. 194. 1900.)
Hesse-Wartegg — *China's Holy Land.* (*Century*, v. 60, pp. 803-819. 1900.)
Hitchcock — *Chinese Education.* (*Century*, v. 60, pp. 900-905. 1900.)
Millard — *Punishment and Revenge in China.* (*Scribner's Magazine*, v. 29, pp. 187-194. 1901.)
Potter — *Chinese Traits and Western Blunders.* (*Century*, v. 60, pp. 921-930. 1900.)
Secret Societies and the Chinese Government — (*Review of Reviews*, v. 22, pp. 339-340. 1900.)
Smith — *Chinese Characteristics.*
Smith — *Village Life in China.*
Smyth — *American Educators in China.* (*Outlook*, v. 66, pp. 545-553. 1900.)
Van Bergen — *Feng Shui, the Chinese Superstition.* (*Harper's Weekly*, v. 44, pp. 1220-1225. 1900.)
What Appeals to the Chinaman — (*Cassier*, v. 18, p. 439. 1900.)
Yan Phou Lee — *When I Was a Boy in China.*

Commerce

Commercial Future of China — (*Review of Reviews*, v. 22. p. 475. 1900.)
Detby — *Chinese System of Banking.* (*Forum*, v. 30, pp. 412-419. 1900.)
Low — *Revenues of China.* (*Harper's Weekly*, v. 44, p. 1242. 1900.)
Hart — *China and Her Foreign Trade.* (*North American*, v. 172, pp. 59-71. 1901.)
Parsons — *Chinese Commerce.* (*Popular Science Monthly*, v. 58, pp. 193-207.)
Read — *Chinese as Business Men.* (*Century*, v. 60, pp. 864-868.)

Religion

Giles — *Confucianism in the 19th Century.* (*North American*, v. 171, pp. 359-374. 1900.)
Müller — *Religions of China.* (*19th Century*, v. 48, pp. 373-384. 1900.)

Japan

Description and Travel

Bigelow — *My Japan.* (*Harper*, v. 102, pp. 225-232. 1901.)
Chamberlain and Mason — *Handbook for Travelers in Japan.*
Hearn — *In a Japanese Garden.* (*Atlantic*, v. 70, pp. 14-33. 1892.)

Hoshi ..... *New Japan.* (*Harper*, v. 95, pp. 890–898. 1897.)
Norman ..... *Japan of To-day.* (See his *Peoples and Politics of the Far East*, pp. 375–393.)
Parsons ..... *Some Wanderings in Japan.* (*Harper*, v. 90. pp. 890–913. 1895.)
Potter ..... *Impressions of Japan.* (*Century*, v. 61, pp. 663–670. 1901.)
Reclus ..... *Japan.* (See his *Earth and Its Inhabitants, Asia*, v. 2, pp. 355–476.)
Scidmore ..... *Jinrikisha Days in Japan.*
Todd ..... *Ten Weeks in Japan.* (*St. Nicholas*, v. 16, pp. 106–120. 1889.)

History

Beresford ..... *Japan.* (See his *Break-up of China*, pp. 419–432.)
Ozaki ..... *Misunderstood Japan.* (*North American*, v. 171, pp. 566–576. 1900.)
Polo ..... *Account of Japan and Java.* (In *Old South Leaflets*, v. 2, No. 32.)
Thomson ..... *Japanese in Formosa.* (See his *Straits of Malacca, Indo-China and China*, pp. 345–347.)

Manners and Customs

Education in Japan ..... (*Scientific American Supplement*, v. 50, pp. 20823. 1900.)
[illegible]losa ..... *Chinese and Japanese Traits.* (*Atlantic*, v. 69, pp. 769–774. 1892.)
[illegible] ..... *Japanese Art.*
[illegible]n ..... *The Japanese Smile.* (*Atlantic*, v. 71, pp. 634–646. 1893.)
Huish ..... *Japan and Its Art.*
Ladd ..... *Mental Characteristics of the Japanese.* (*Scribner*, v. 17, pp. 79–93. 1895.)
Piggott ..... *Japanese Customs.* (*Living Age*, v. 193, pp. 797–805. 1892.)
Mitsukuri ..... *Social and Domestic Life of Japan.* (*Atlantic*, v. 81, pp. 336–349. 1898.)
Nitobe ..... *Morals and Manners of the Japanese as Viewed by a Native.* (*Scientific American Supplement*, v. 50, pp. 20764–20765. 1900.)
[illegible]hida ..... *Social Life in Japan.* (*Public Opinion*, v. 29, p. 503. 1900.)

Commerce

Okuma ..... *Industrial Revolution in Japan.* (*North American*, v. 171, pp. 677–691. 1900.)
Japan ..... Commerce and Industry, Bureau of.

Religion

Kishimoto ..... *Shinto, the Old Religion of Japan.* (*Popular Science Monthly*, v. 46, pp. 206–216. 1895.)
Regeneration of Japan (*Outlook*, v. 66, pp. 867–868. 1900.)

Korea

Curzon ..... *Korea.* (See his *Problems of the Far East*, pp. 85–217.)
Hulbert ..... *Korean Inventions.* (*Harper*, v. 99, pp. 102. 1899.)
Reclus ..... *Korea.* (See his *Earth and Its Inhabitants, Asia*, v. 2, pp. 334–354.)
Reclus ..... *Korea.* (See his *Bird's Eye View of the World*, pp. 371–373.)
Williams ..... *Corea.* (See his *Middle Kingdom.*)

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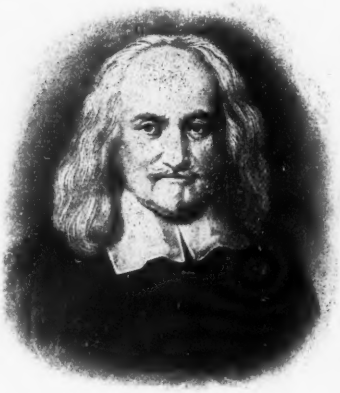

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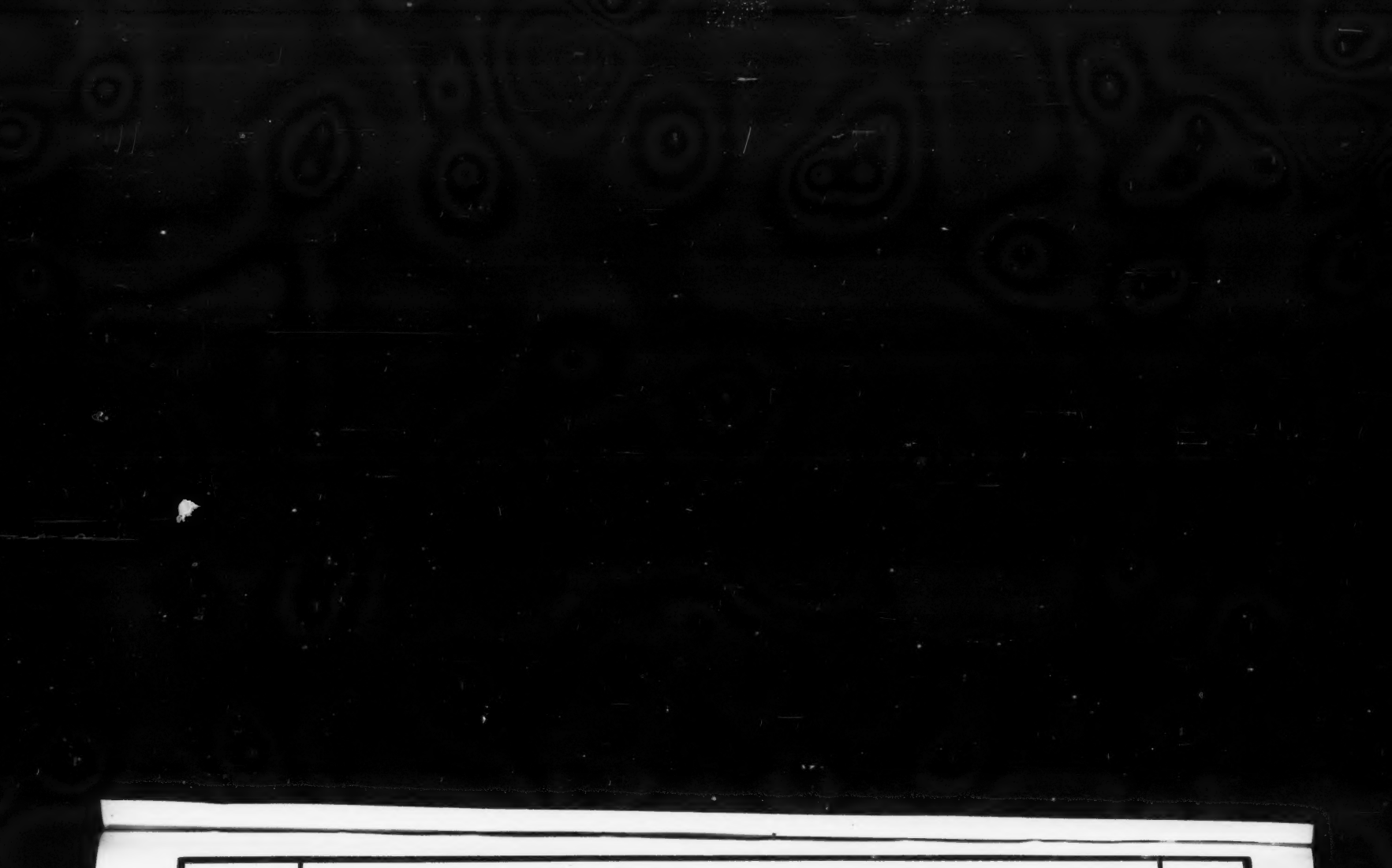
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